

# **Town of Davie Local Road Master Plan**

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# Local Road Master Plan - FINAL

Town of Davie, Florida

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# Table of Contents

Table of Contents.....	iii
List of Figures.....	iv
List of Tables.....	v
Introduction.....	2
2005 evaluation and appraisal report (ear).....	2
Master Plan Development Process .....	5
Public Outreach.....	7
Transportation, Land-Use and Land Development Connection .....	10
Transportation System Management Strategies .....	12
Connectivity and Access Analysis .....	12
Proposed Functional Classification .....	16
Right-of-way dedication/vacation .....	24
Traffic Calming and Safety Mitigations .....	25
Existing Roadway Assessment .....	30
Roadway ownership.....	30
Operational Analysis .....	34
Future Traffic Volume Forecast and Operation.....	49
Proposed Future Roadways and Projects .....	58
Reference.....	74



## List of Figures

Figure 1	Study Area Map and Major Transportation Facilities .....	11
Figure 2	Proposed Functional Classification Map .....	19
Figure 3	Typical Roadway Cross-section – 1/4 .....	20
Figure 4	Typical Roadway Cross-section – 2/4 .....	21
Figure 5	Typical Roadway Cross-section – 3/4 .....	22
Figure 6	Typical Roadway Cross-section – 4/4 .....	23
Figure 7	Key Modern Roundabout Features and Dimensions .....	28
Figure 8	Jurisdictional Responsibility.....	33
Figure 9	Study Roadways and Intersections .....	37
Figure 10	2008 24-Hour Traffic Profile at Major Local Roadways .....	38
Figure 11	2008 Study Roadway AADT and Traffic Conditions .....	40
Figure 12	2008 Weekday AM Peak Hour Traffic Conditions .....	43
Figure 13	2008 Weekday PM Peak Hour Traffic Conditions .....	44
Figure 14	Crash Analysis Results .....	47
Figure 15	2030 AADT and Level-of-Service .....	51
Figure 16	2030 Traffic Conditions, Weekday AM Peak Hour .....	55
Figure 17	2030 Traffic Conditions, Weekday PM Peak Hour .....	56
Figure 18	Proposed Future Projects .....	72



## List of Tables

Table 1	Transportation System Management Strategies .....	13
Table 2	Minimum Roadway Intersection Spacing Standards.....	15
Table 3	Proposed Roadway Design standard.....	24
Table 4	Proposed Speed Threshold.....	25
Table 5	Proposed Volume Threshold .....	25
Table 6	Recommended Inscribed Circle Diameter Ranges from Exhibit 6-19 of the <i>Roundabouts: An Informational Guide</i> .....	27
Table 7	Study Roadways for Local Road Master Plan.....	36
Table 8	AADT Data and Analysis Results .....	39
Table 9	Roadway Average Number of Crash Per Mile .....	45
Table 10	Study Intersection Crash Rate Summary .....	46
Table 11	2030 AADT and LOS Results at Study Roadways .....	50
Table 12	FINAL Proposed Project List .....	59

## **Section 1**

### Introduction



## Introduction

The Local Road Master Plan (or the Master Plan) project is initiated by Town of Davie to address the transportation concerns raised in the past studies, the Town's Comprehensive Plan and by the citizens. The Master Plan is also addresses the specific transportation issues raised in the 2005 Evaluation and Appraisal Report (EAR) of the Comprehensive Plan, and fulfills Town's commitment as part of the Florida Statue 163.3191 *Evaluation and Appraisals of Comprehensive Plan*.

The Master Plan analyzes the current roadway conditions, identifies major issues of the Town and proposes a draft project list to address the issues. The majority of the concerns are focused on inadequate east-west connection, lack of roadway connectivity, traffic congestion at certain location and vehicle speed. To address these issues, the Local Road Master Plan conducted the analysis according to the tasks described in the Master Plan Development Process section below.

## 2005 EVALUATION AND APPRAISAL REPORT (EAR)

The 2005 EAR was prepared by the Planning and Zoning Division of the Town of Davie with the assistance of Calvin, Giordano & Associates and URS Corporation. The EAR evaluates the performance of the Town in complying with the adopted Comprehensive Plan. Based on the evaluation, the Town is in the process of amending the Comprehensive Plan and undertaking steps to comply with the amended Comprehensive Plan. This Local Road Master Plan is conducted to comply with the recommendation of the 2005 EAR and adopt the amended Comprehensive Plan.

The Transportation Element of the EAR reported six major issues, of which, two issues pertain to the Local Road Master Plan. These issues are discussed below.

### ***Issue 5 of EAR: Building an Adequate Local Road Network***

The EAR reviewed the existing condition of the local road network. It primarily concluded that the Town has adequate north-south connection but lacked adequate east-west connectivity. This is in contrast with the existing Comprehensive Plan policies that discourage straight connections that would result in cut-through traffic. As part of the policy, several public right-of-ways have been vacated where constructing the east-west connection is physically feasible. The Local Road Master Plan attempts to balance the need for the east-west connection while continuing to discourage cut-through traffic.

The EAR also identifies roadways that do not meet the Level-of-Service (LOS) D standard. These roadways are listed in Technical Memorandum 1 of the Master Plan and were included as the study roadway.

The EAR also lists major traffic generators inside and outside Town boundary that may have influence on the Town roadways. The EAR specifically highlights the existing Industrial District and the lack of internal grid systems of streets and anticipated growth of Nova Southeastern University. It also analyzes the existing transit service, the transit oriented land use pattern, trails and its network, accident frequency and traffic calming measures. In summary, the EAR recommends:



- Continue coordination with the State of Florida and Broward County transportation agencies through existing mechanisms to ensure continued traffic safety and level of service.
- The Town should provide network continuity for north-south and east-west circulation, meaning that there are no gaps in the network.
- The Town shall continue to improve the level of service on the regional roadways.
- The Town shall implement policies to encourage transit and other multi-modal forms of transportation throughout the Town.
- Streets should be designed to decrease accident frequency.
- The Town should adopt a Transit Concurrency Management System due to the recent adoption of Transit Concurrency by Broward County.
- Retain a consultant to create a public right-of-way base Master Plan for the local roadways of the Town.

### ***Issue 6 of EAR: Evaluation and Impact of the Proposed Increase in Density of the Regional Activity Center (RAC)***

The EAR acknowledges the development impact of the Regional Activity Center (RAC) in the Town which has resulted in cut-through traffic, longer commutes and lack of pedestrian safety on local roads. The EAR identifies following deficiencies in the RAC;

- Long discontinuous streets make pedestrian travel difficult;
- Lack of street grid pattern,
- Higher auto speeds; and
- Over dependence of single-occupancy vehicles.

Technical Memorandum 1 identifies the Goals and Objectives of the Transportation Element that is not met at the time of the EAR evaluation. It highlights the deficiencies of the local, County and State roadway network. Listed below are the Goals of the Transportation Element of the Comprehensive Plan and the Objectives that specifically calls for the need for a Local Road Master Plan. Other objectives are either identified as being met or does not pertain to the Master Plan.

***Goal 1 of the Transportation Element:*** To develop and maintain an overall transportation system which will provide for the transportation needs of all sectors of the community in a safe, efficient, cost effective and aesthetically pleasing manner.

- ***Objective 1.1:*** *To the extent that the Town has control, the Town will ensure that transportation facilities and services for those roads identified in this element Plan meet level of service standards established within the Town of Davie Comprehensive Plan.*

***Goal 2 of the Transportation Element:*** The Town will coordinate with FDOT and the County, to exceed, by 2004, the regional level of service (LOS) goal of overall 10 percent reduction in





the lane miles of the Regional Roadway Network within Davie currently operating below level of service “D”.

- **Objective 2.1.2:** *Unless exempt under other policies, the concurrency management system shall establish the “following roadway” peak-hour LOS standards for the purpose of issuing development orders and permits: Several roadway links within the Town have a LOS F. Hence, a (local) Road Master Plan is recommended.*
- **Objective 2.1.4 and 2.1.5:** *The Town establishes a minimum peak hour LOS D (Objective 2.1.4) and LOS C (Objective 2.1.5) for locally maintained collector and all other roadways, respectively. Hence a (local) Road Master Plan is recommended.*
- **Objective 2.1.12:** *The Town shall coordinate with Broward County to develop Transportation Demand Management (TDM) and Transportation System Management (TSM) programs to modify peak hour travel demand and reduce the number of vehicles miles traveled per capita with the Town and region. A (local) Road Master Plan is recommended to assist in implementation of the program.*
- **Objective 2.2:** *The Town will enforce a concurrency management system which monitors and manages new growth in conformance with Florida’s Local Government Comprehensive Planning and Land Development Regulation Act. A local road concurrency is recommended.*

**Goal 3 of the Transportation Element:** The Town will actively promote the provision of a safe, convenient and efficient transportation system for motorized and non-motorized modes of travel

- **Objective 3.1.1:** *By 2001, the Town will modify, if necessary, existing Land Development Regulation based on urban design for transportation facilities to encourage the utilization of parallel frontage roads, interconnected driveways, or their design equivalent to reduce conflicts between local and through traffic.*
- **Objective 3.2:** *The Town will continue the implementation of a safe and enjoyable bikeway/walkway system which will include land use and other strategies to promote the use of bicycles and walking.*

**Goal 4 of the Transportation Element:** Coordinate transportation and land use planning activities to ensure adequate facilities and services are available to meet existing and future needs of Davie’s population and economy.

- **Objective 4.1:** *The Town will coordinate transportation planning activities with land use decisions, ensuring that transportation planning and land use planning activities are properly coordinated in the Town, as shown in the Future Land Use Map. The Local Road Master Plan is anticipated to assist the Town on fulfilling the objective.*

**Goal 5 of the Transportation Element:** Encourage a transportation system which minimizes environmental impacts, conserves energy, and conserves the Town’s lifestyle in addition to moving traffic safely and efficiently



- **Objective 5.1:** *The Town shall continue to encourage alternatives to single-occupancy and other automobile travel to minimize negative environmental impacts* The Local Road Master Plan is anticipated to assist the Town on fulfilling the objective.

**Goal 6 of the Transportation Element:** Continue developing a high level of transit service which provides safe, economical, efficient, and convenient travel for the citizens of the Town of Davie

**Goal 7 of the Transportation Element:** Support the BCT development of a level of transit service which provides an alternative to the private automobile for those who wish to change modes.

**Goal 8 of the Transportation Element:** Retain and expand transit services for the elderly, handicapped and other transportation disadvantaged groups, with both regular and specialized service.

**Goal 9 of the Transportation Element:** Coordinate local land use and traffic circulation planning with regional efforts to provide a convenient, safe and adequate aviation system.

**Goal 10 of the Transportation Element:** Coordinate with Broward County in the implementation of the countywide Transportation Element recognizing that the Town includes parts of the Regional (County/State) Roadway system and other modes of transportation.

## MASTER PLAN DEVELOPMENT PROCESS

The Local Road Master Plan project was conducted in several tasks. The tasks were performed in sequence that addressed the scope of the project. At the end of each task a technical memorandum was prepared summarizing the activities conducted under the task and the resulting outcome. The technical memorandums were reviewed by the Town staff and provided comments. These comments are included in the final version of the memorandum. This Local Road Master Plan provides a summary of the tasks.

### **Task 1: Background Review and Define Study Area**

Kittelson & Associates, Inc. (KAI) reviewed all the reference documents provided by the Town of Davie staff, the traffic volumes on major roadways and intersections, and identify up to 15 study intersections and up to 10 local study roadways for further study. These intersections and roadways were identified based on the assessment of functional classification, crashes, roadway and intersection congestion and roadway connectivity deficiencies. The final study roadways and intersections were approved by the Town staff before proceeding. Technical Memorandum 1 summarized the tasks and the results.



### ***Task 2: Existing Condition Assessment***

KAI visited the study roadways and intersections to collect various transportation characteristics data and conducted weekday a.m. and p.m. peak hour analysis of the study intersections and AADT analysis of the study roadways by taking into consideration the existing traffic volume, roadway/traffic signal characteristics, and the geometry. The tasks also analyzed the roadway connectivity issue around the Town. Figures with information showing existing functional classification, jurisdictional responsibility, existing lane configurations, level-of-service and volume-to-capacity (v/c) ratio and crash rate were prepared. Technical Memorandum 2 summarizes the task and the results of the operational analysis.

### ***Task 3: Future Condition Assessment***

As part of task 3, KAI reviewed the growth forecast, estimated the future year 2030 traffic volumes for the study roadways and intersections, and conducted weekday a.m. and p.m. peak hour analysis of the study intersections and AADT analysis of the study roadways. Potential needed mitigations were identified to accommodate future traffic volume forecast to meet adopted level-of-service standards, roadway connectivity, vehicular speed and projects identified in past studies. TY Lin International estimated the cost of the proposed projects based on latest cost information. The projects were categorized into short-term (0-5 years), mid-term (5-10 years) and long-term (10-20 year) capital improvement project list.

### ***Task 4: Draft Master Plan Preparation***

Based on all the comments received from the public open house and Town staff, KAI prepared this draft Local Road Master Plan. The plan summarized all the previous findings, existing and future conditions, roadway connectivity issue, vehicular speed issue and the proposed mitigation list into a concise report.

### ***Task 5: Public Outreach/Workshop***

In an effort to solicit feed back from the public, three public open houses were held at the Davie Police Department on Nob Hill Road. The dates of the public open houses were February 7, 2008, March 20, 2008 and April 24, 2008. See the public outreach section below for more detail.

### ***Task 6: Finalize Master Plan***

The draft Master Plan was updated to the final Local Road Master Plan based on the final comments received from the public, the Town staff and during the workshop with the Town Council. The draft Local Road Master Plan was tabled at the July 2, 2008, Town Council Meeting to allow for final revisions to the document. The Master Plan is anticipated to be adopted by the Town Council at the August Town Council meeting. As a result of the Local Road Master Plan, the Town may need to amend the Town's planning and zoning ordinance, roadway engineering standards, development review process, transportation concurrency requirements etc. It is recommended that appropriate steps be taken to implement the recommendation of the Local Road Master Plan.



### ***Task 7: Town Council Workshop/Hearing***

KAI and TY Lin prepared and conducted a workshop with the Town Council to explain the project process, its outcomes and the resulting project list. A detailed discussion on the proposed project list was discussed during the July 2, 2008 Town Council Meeting. Based on the discussion, the project list has been finalized and the Town Council is anticipated to adopt the final Local Road Master Plan.

## **PUBLIC OUTREACH**

The Local Road Master Plan project was presented to the public in three public open houses. At all the public open house, the tasks completed to date on the project were presented. The residents that were present at the open houses were given comment sheets to provide written comments. A summary of the comments received from the residents and project team's response is provided in Technical Memorandum 4. The discussion on the open houses is provided below.

### ***Public Open House 1: February 7, 2008***

The open house was conducted by Town staff and KAI project team. Town staff welcomed the people in attendance and introduced the staff and the project team. KAI gave a short presentation to introduce the project, describe the goals and present the findings of tasks 1 and 2 of the project. The figures that summarized the results in the Technical Memorandum 1 and 2 were presented to the public. They showed the characteristics of the roadways and the existing traffic conditions. The attendance sheet records 15 names but the overall attendance was approximately 25 people. Written comments were received from the residents in attendance. KAI engineers and Town staff discussed with the residents to identify additional issues thanks to the residents' knowledge of the area. Multiple comments from the residents related to transportation issues around their area and general comments on overall issues were received. Technical Memorandum 4 provides the comments and project team's responses.

### ***Public Open House 2: March 20, 2008***

Public Open House 2 focused on the future traffic conditions and the potential list of improvement projects. It presented the results of task 3 of the project and the figure of Technical Memorandum 3. The attendance sheet records 20 names but the overall attendance averaged approximately 25 persons. Various comments from the residents related to future transportation concerns around the Town were received. Technical Memorandum 4 provides the comments and project team's responses.

### ***Public Open House 3: April 24, 2008***

Public Open House 3 focused on presenting the draft project list, proposed functional classification map and roadway cross-section. It presented the results of the draft Local Road Master Plan. The attendance sheet records 19 names but the overall attendance averaged approximately 30 persons.



Several comments were received from the public. Technical Memorandum 4 provides the comments and project team's responses.

## **Section 2**

### Transportation, Land-Use and Land Development Connection



## Transportation, Land-Use and Land Development Connection

The Town of Davie is located in central Broward County and occupies approximately 35 square miles. The Town is generally bounded by I-595 to the north, SR 7 to the east, Griffin Road to the south and I-75 to the west. Its population of approximately 85,500 (Reference 1) lives mainly in a semi-rural portion of the Town, which is located in the central and western areas. Several areas around the Town have gated residential communities, especially along Nob Hill Road and Hiatus Road. The eastern portion of the Town has higher population density. The South Florida Education Center (SFEC), which includes several institutions like Nova Southeastern University, Broward Community College, Florida Atlantic University, Florida International University, University of Florida, etc., is located on the eastern portion of the Town. It is generally bounded by Davie Road to the east, SW 39<sup>th</sup> Street to the south, University Drive to the west and Nova Drive to the north. In addition, the Davie Community Redevelopment Agency (CRA) is generally bounded by SW 62<sup>nd</sup> Avenue to the east, Orange Drive to the south, SW 67<sup>th</sup> Avenue to the west and SW 42<sup>nd</sup> Street to the north. A large portion of the commercial and retail developments are located on the south side of SR 84 at major intersections, along University Drive and Davie Road, while a majority of the industrial developments are located between the Florida Turnpike and SR 7, and south of SR 84 to Griffin Road.

As development pressure focuses on Davie, the Town has come to recognize the challenges and limitations of expanding the transportation system to accommodate increasing travel demand. In the past, the primary approach to accommodate this demand has been to widen existing roadways or intersections to reduce delays for vehicular traffic. However, this approach of addressing the traffic congestion issue is generally thought to be unsustainable as it is understood that the region cannot build its way out of congestion. Instead, a more balanced and thought through process is needed to address the issue. This approach includes implementing various transportation system management and planning strategies, which are discussed in the following sections.

The roadway network is considered the backbone of a community. They are the infrastructure upon which a livable community is built upon. While the primary function of the roadway is to provide access to various parcels as well as provide mobility to road users, first and foremost, they are public spaces for the public to enjoy and utilize. They should be viewed as public spaces for the community to come together. As the Town moves forward with implementing the Local Road Master Plan, it is recommended that the Town implement following general principal to ensure that the local roadways are enjoyed by all residents:

- Incorporate appropriate transportation system management strategies
- Providing appropriate level of roadway connectivity based on the surrounding zoning district, while reducing potential for cut-through traffic
- Assigning appropriate functional classification and design of the roadway

Figure 1 shows a map of Town of Davie and highlights the major transportation facilities.



## **Figure 1** Study Area Map





## TRANSPORTATION SYSTEM MANAGEMENT STRATEGIES

Acquiring public rights-of-way to widen roadways and intersections in order to address traffic congestion are limited due to adjacent land uses, urban form, and other physical features constraining the engineering, financial, and social feasibility. The Town may address future congestion on major roadways in the Town by increasing roadway connectivity, while ensuring that cut-through traffic is minimized. In addition, the Town could implement policies to manage the demand for travel, i.e. encouraging neighborhood retail and commercial developments, providing incentives for carpool and providing option of staggered office hours by major employers, etc. These policy decisions are essential to ensure that the Town has the tools to manage the transportation impact of growth, as well as accommodating regional growth, which may not be under Town's control.

Transportation System Management (TSM) is an alternate strategy that offers alternative approaches to address the issue of congestion. The concept behind TSM is described by several key factors that are inherent to the urban environment and contribute to congestion.

- Congestion is more than the sum of the vehicles on a street. There are direct ties to personal behavior, institutional attitudes, and land use development patterns.
- There is a direct and fundamental land use/transportation relationship that generates changes in travel demand. This relationship can result in congested, unsafe, and environmentally damaging conditions, if not properly planned.
- Solutions to congestion can come from changes to the transportation system (increasing connectivity/capacity), modifications to travel behavior and providing mode choices (managing travel demand). From a land use perspective solutions to congestion can be developed based on where we locate uses with respect to one another and how we provide access to the transportation system.

Transportation system management strategies are broad ranging and must be evaluated for their effectiveness, applicability, and appropriateness before being implemented. Table 1 provides a brief summary of some of the TSM strategies that are available to the Town of Davie.

These and other strategies should be evaluated each time the Town is considering action to address the need to improve the transportation system, particularly in response to traffic congestion. In addition, some of the strategies, like the land use/policy strategy outlined below, may be implemented as part of the land-development review process.

## CONNECTIVITY AND ACCESS ANALYSIS

In addition to the regional transportation facilities surrounding the Town, like I-595, I-75, Florida Turnpike, etc., there are several major roadways that divide the community and provide links to the regional facilities. The majority of the roadways provide links in the north-south direction, whereas east-west connections are limited. The 2005 Evaluation and Appraisal Report (EAR) of the Comprehensive Plan have outlined lack of east-west connectivity as one of the main transportation issue in Davie.



**Table 1 Transportation System Management Strategies**

<b>Strategy: Tool</b>	<b>Effect</b>	<b>Cost</b>
<b>Roadway Infrastructure Improvement Strategies:</b>		
Traffic Signal Improvements	8 to 25 % travel time reduction	Low
Intersection Improvements	Highly variable capacity increase	Variable; low to medium cost
Restriping for Additional Lanes	35 to 50 % capacity increase	Variable; low to medium cost
Turn Prohibitions	35 to 50 % crash rate reduction	Low
One-way Streets	Improved flow, safety, & capacity	Variable; low to moderate cost
Reversible Traffic Lanes where feasible	30 to 50 % directional capacity increase	Variable; higher operating costs
Traffic Control Device Improvements	Improved flow & safety	Low
Access Management	Improved flow, safety, & capacity	Highly variable; low to high
Parking Management	Increased HOV rates, reduced demand	Low; increased user costs
Goods Movement Management	Improved flow, safety, & capacity	Variable; typically low
Maintenance & Reconstruction	5 to 30 % capacity restoration	Low, when kept up
<b>Transit/ Pedestrian/Bicycle/Communications Strategies:</b>		
Dedicated Transit Corridors	Highest person-capacity system	Highest cost to construct
Surface Bus Service	10 to 25% person-capacity increase	Usually requires public subsidy
Paratransit Service	Mobility for the disadvantaged	High per trip cost; public subsidy required
HOV Lanes	Significant person-capacity increase	Moderate cost; enforcement needed
Pedestrian Facilities	More efficient use of facilities	Low
Bicycle Facilities	More efficient use of facilities	Low
Telecommunication Facilities	Significant demand reduction potential	Low public sector cost
<b>Land Use/Policy Strategies:</b>		
Mixed Use Development/High Density Policies	Reduced auto demand/dependency	Low; public acceptance required
Transit-oriented Policies	Increased transit effectiveness	Low; agency cooperation required
Parking Policies	Balanced access, more multi-modal	Low; economic impact
Growth Management	Sustainable, balanced, efficient growth	Low
Trip Reduction Ordinances	Reduced reliance on auto	Low
Site Design Criteria	Increased efficiency, balanced access	Low

Sources: Oregon City, Transportation System Plan



Roadway connectivity is important for following reasons:

- *Emergency Evacuation:* In times of emergency, relying on one access roadway to an area puts many lives in danger. If the roadway is blocked due to fallen trees or broken down vehicles or other obstacles, the area becomes isolated and would require airlifting of all impacted residents at enormous cost to the community. Hence, a secondary, functional and efficient roadway is vital during times of emergency.
- *Reduce Traffic Congestion:* Relying on one access roadway requires all traffic to be funneled through a few bottle-neck areas in the roadway network, e.g. congested roadways and intersections. Providing a secondary access roadway distributes the traffic demand throughout the roadway network and reduces the need to widen roadways.
- *Enhances Community Living:* Better roadway connectivity leads to less pressure to widen roads, potentially reduces vehicle speed and increases pedestrian activity. These features enhance community living and encourage a physically active lifestyle.

### ***Existing Access and Mobility Review***

All the principal and minor arterials in the Town are either under state or county jurisdiction. The arterials are the main thoroughfares in the Town and carry majority of the traffic. However, the Town has limited control over the functionality and accessibility of the arterials. The arterial's primary function is to provide regional mobility with limited access to surrounding land-uses. In addition, due to the low-density land uses surrounding the arterials, the arterials acts as a physical barrier in the community and limits the integration of various neighborhoods.

A majority of the arterials provide regional mobility in the north-south direction, for example, Flamingo Road, Hiatus Road, Nob Hill Road, S Pine Island Road, University Drive, Davie Road and SR 7. Only Griffin Road and Stirling Road provide regional mobility in the east-west direction. Hence, there is a definite lack of east-west mobility, especially through the mid-section of the Town. However, due to existing residential developments and the anticipated impact, a new and direct (straight) east-west roadway may not be a feasible to construct. Instead, improved localized east-west connectivity will provide the needed accessibility while reducing cut-through traffic and reliance on the major arterials for local access.

The type of connectivity and access needs vary in different areas based on the traffic demand generated by the land-uses and intensity of the uses. For a rural residential neighborhood, adequate connectivity may be defined as having a primary and secondary access to major transportation facilities in the area. For commercial land-uses, the need for connectivity and access is greater. Several access alternatives are desired for greater economic vitality of the land-use.

### ***Proposed Roadway Connectivity Requirement***

The Town's Engineering Design Standard Manual (Reference 2) provides limited guidance to improve roadway connectivity. In Section 1.2.3, it states that *Cul-de-sacs shall not exceed 600 feet in length when measured from centerline of the branching intersection*. However, there are several existing developments where this standard is violated. Furthermore, Chapter 12 of the Town's Code of



Ordinance, Land Development Code, provides design criteria for local streets by development type (Reference 3).

In order to ensure that adequate roadway connectivity is provided as the Town develops in the future, the Town may establish a minimum street spacing standard based on the functional classification of the intersecting roadways. These spacing standards may be incorporated into the Town's Land Development Code to ensure compliance from private land-developers. Table 2 shows the proposed minimum roadway intersection spacing standards.

**Table 2 Minimum Roadway Intersection Spacing Standards**

<b>Functional Classification</b>	<b>Arterial</b>	<b>Major Collector</b>	<b>Minor Collector</b>	<b>Local Street</b>
Arterial	2 miles	1 mile	¼ mile	1,000 feet
Major Collector	1 mile	½ mile	1,500 feet	800 feet
Minor Collector	¼ mile	1,500 feet	1,000 feet	600 feet
Local Street	1,000 feet	800 feet	600 feet	400 feet

In different areas in the Town, the need for connectivity may be different. The Town may show flexibility in implementing the above street standard based on the zoning of the area. For example, in high density commercial and residential areas, the Town may consider providing Local Street to Local Street connections (at 400 feet spacing) so that there is high accessibility in the area. This encourages pedestrian activities, reduces vehicular speed, and provides ample access to small commercial/retail businesses. Similarly, in low density residential neighborhoods and industrial areas, the Town may consider providing major collector to major collector connectivity (at ½ mile street spacing). Hence, as different areas of the Town develop, the Town may require developers to build roadways to meet the minimum roadway intersection spacing standards shown in Table 2.

### ***Cut-Through Traffic***

One of the main concerns that residents have with increased connectivity is the potential of increased cut-through traffic. This concern is valid as the major roadways in the Town become more congested. However, it is important to define what constitutes cut-through traffic. Technically, a cut-through traffic occurs when traffic on a regional facility uses local roadways to access another regional facility. However, when traffic on a regional facility uses one local roadway to access another local roadway, it is not considered cut-through traffic. It simply provides additional access to neighborhood and the vehicle-miles-travelled. Hence, not all roadway connections directly promote cut-through traffic. Where there is a potential of creating genuine cut-through traffic, the Local Road Master Plan recommends implementation of strict traffic calming measures to discourage regional traffic from using local streets.

In summary, to address the cut-through concern, a two pronged approach was considered when identifying roadway connections and improvements:



- Identify an existing roadway that has the potential to increase capacity and form a natural thoroughfare that provides regional mobility. This reduces the tendency for cut-through neighborhoods; e.g. SW 14<sup>th</sup> Street
- Instead of providing one major east-west thoroughfare, look for opportunities to make intermittent connections such that local residents do not have to travel through a bottleneck area to access their property. Cut-through traffic can be discouraged by the use of traffic calming measures.

## PROPOSED FUNCTIONAL CLASSIFICATION

A roadway's *functional classification* describes its role in the transportation system. The function and role of the roadway can be described in terms of the character of service the roadway is intended to provide. In general, the functional classification of a roadway is based on the varying degree of its two primary functions: 1) providing regional mobility; and 2) promoting local accessibility. The tools that are commonly used to govern the classification are roadway width, posted/design speed, right-of-way dedications, access spacing requirements, types of pedestrian and bicycle facilities provided, among other standards.

Florida Department of Transportation (FDOT) classifies its highways based on the Florida Intrastate Highway System (FIHS) as indicated in the FDOT Systems Planning Office (Reference 4). FDOT also provides functional classification for major roadways within a city. The roadways are primarily classified as arterials, collectors, and local roadways. Local jurisdictions typically establish the functional classification of roadways using this hierarchy.

An appropriate functional classification of a roadway, its amenities, with supporting surrounding land-use and its design determine the livability of the roadway. It has the ability to enhance the public space and the economic vitality of the area. Hence, appropriate functional classification of a roadway is essential element of the Local Road Master Plan.

The current functional classification of the Town's roadway and the corresponding engineering design standard are inconsistent in several ways. Technical Memorandum 3 outlines the inconsistencies in detail. The proposed functional classification map is anticipated to provide a consistent functional classification map, cross-section and roadway design standards.

In addition, the proposed functional classification map is anticipated to fulfill the following goals of the Comprehensive Plan for the Town of Davie.

**Goal 1 of the Transportation Element:** *To develop and maintain an overall transportation system which will provide for the transportation needs of all sectors of the community in a safe, efficient, cost effective and aesthetically pleasing manner.*

**Goal 3 of the Transportation Element:** *The Town will actively promote the provision of a safe, convenient and efficient transportation system for motorized and non-motorized modes of travel.*

**Goal 5 of the Transportation Element:** *Encourage a transportation system which minimizes environmental impacts, conserves energy, and conserves the Town's lifestyle in addition to moving traffic safely and efficiently.*

Figure 2 shows the proposed functional classification map. The classification is based on providing adequate mobility and accessibility for the surrounding land-uses and the anticipated



function of the roadway. The proposed functional classification is described below. Table 3 provides the roadway design standard for the roadways. *Any future development with site frontage on Town roadways is recommended to be required to build at least the site frontage to meet the functional classification standard outlined in this report.*

### **Local Rural Roadway**

This roadway provides access to adjacent properties in the low density residential neighborhoods. It provides the lowest mobility and highest accessibility to the area. The average daily traffic on the roadway is generally less than 600 vehicles. At this low volume, bicycles are accommodated on the roadway. The posted speed on the roadway is not more than 30 mph. It is a two-lane roadway cross-section with a parallel off-road parking. These roads typically are controlled by stop-signs when they intersect with collectors and arterial streets. Figure 3 shows the cross-section of the roadway.

### **Local Urban Roadway**

Local urban roadways are similar to local rural roadway except that they accommodate slightly higher daily traffic volumes –around 1,000 vehicles per day, a 25 mph posted speed and have 50-foot rights-of-way. They also provide access to adjacent properties and operate at low speeds. Figure 3 shows the cross-section of the roadway.

### **Minor Collector**

These roadways serve as collector streets within residential neighborhoods with a posted speed of 35 mph. They collect traffic from and distribute traffic to local streets within the neighborhoods. Their primary function is to provide access and local circulation. They are usually longer than local streets. Traffic calming measures may be implemented on these roadways to control vehicular speed and volume and to ensure livability and safety. These roadways may provide direct access to the properties. Sidewalks are generally required on the roadway and bike lanes are provided. Figure 4 shows the cross-section of the roadway.

### **Major Collector (3, 4 and 5-Lane)**

These roadways connect principal traffic generators. They carry local traffic between neighborhoods and community and regional facilities within the Town and the posted speed is usually 40 mph. They serve as parallel routes to arterials and distribute traffic from arterials to minor collectors and local streets. Sidewalks and bike lanes are required on these roadways. Figures 4 and 5 show the cross-sections of the roadway.

### **Arterial (6-Lane)**

These roadways carry both local and regional traffic to destinations outside the Town with a posted speed of 45 mph or higher. They connect the collectors and local streets to freeways. They provide access to other Cities in the area as well as between communities within the Town. They provide limited access to adjacent land uses but their primary function is mobility for major traffic movements. Access control through median and/or driveway channelization may be present. Traffic volumes and vehicular speeds are typically moderate to high. These roadways



typically provide transit service. Sidewalks and bike lanes are required. Figure 6 shows the cross-section of the roadway.



## **Figure 2** Proposed Functional Classification Map





## **Figure 3** Typical Roadway Cross-section – 1/4



## **Figure 4** Typical Roadway Cross-section – 2/4



## **Figure 5** Typical Roadway Cross-section – 3/4



## **Figure 6** Typical Roadway Cross-section – 4/4



**Table 3 Proposed Roadway Design standard**

	<b>Arterials</b>	<b>Major Collector – 5 Lane</b>	<b>Major Collector – 4 Lane</b>	<b>Major Collector – 3 Lane</b>	<b>Minor Collector</b>	<b>Local Urban</b>	<b>Local Rural</b>
<b>Typical ADT (Average Daily Traffic)</b>	>7,500	5,500-7,500	4,000-6,000	2,500-4,500	1,200-2,500	500-1,000	150-600
<b>Design Speed</b> <b>-Minimum ①</b> <b>-Recommended</b>	40 55	35 45	30 45	30 40	30 35	25 30	25 30
<b>Lane Width</b> <b>-Minimum ①</b> <b>-Recommended</b>	- 11-12 ft.	10 ft. 12 ft.	- 10-12 ft.	10 ft. 12 ft.	10 ft. 12 ft.	10 ft. 12 ft.	10 ft. 12 ft.
<b>Bicycle Lane Width -</b>	5 ft.	5 ft.	5 ft.	5 ft.	5 ft.	②	②
<b>Pavement Width</b>	94 ft. ③	72 ft. ③	73 ft. ③	48 ft. ③	34 ft. ③	24 ft.③	24 ft.③
<b>Recommended Minimum Access Spacing ④</b>	500 ft.	300 ft.	300 ft.	150 ft.	125 ft.	100 ft.	100 ft.
<b>Surface Type</b>	2" A.C.	2" A.C.	2" A.C.	2" A.C.	2" A.C.	1.5"A.C.	2"A.C.
<b>Base Depth (Limerock)</b>	8"	8"	8"	8"	8"	8"	8"
<b>Sub Grade</b>	12"	12"	12"	12"	12"	12"	12"
<b>Minimum ROW Width</b>	110 ft.	100 ft.	85 ft.	80 ft.	60 ft.	50 ft.	40 ft.
<b>Applicable Design Standards and Specifications</b>	⑤	⑤	⑤	⑤	⑤	⑤	⑤

① Design for Recommended Standard unless approved by the Town Engineer

② Bikes are recommended on shared roadway with ADT less than 3,000 vehicles

③ Pavement with depends on design lane

④ Lowering spacing may be allowed when supported by a traffic study and approved by the Town Engineer, or when no other public road access is possible

⑤ For all design, 2007 Town's Engineering Design Standards Manual, Broward County Highway Construction and Engineering Division Minimum Standards Manual, State of Florida Department of Transportation Design Standards Manual 2007, latest AASHTO and latest MUTCD should be followed.

## RIGHT-OF-WAY DEDICATION/VACATION

In the Town of Davie, right-of-way dedication and/or vacation for any future roadway should be based on the roadway network presented in the approved Local Road Master Plan (Figure 18). Where specific projects are not listed, any future roadway alignment may be developed based on roadway spacing presented in Table 2. The right-of-way needed for the roadway may be based on the typical cross-sections presented in this study. The goal of any future roadway alignment should be:

- Improve accessibility of the area and reduce reliance on a single roadway for access;
- Provide east-west and pedestrian connectivity to activity centers; and
- Reduce emergency response time to the area from major roadway facilities.



## TRAFFIC CALMING AND SAFETY MITIGATIONS

Several roadways in the Town have experienced unsafe vehicular speeds. This includes several roadways in the Oakhill neighborhood, such as SW 148<sup>th</sup> Avenue and SW 154<sup>th</sup> Avenue. Similarly, there may be several other roadways that need to be evaluated to identify the need to install traffic calming measures. The three main goals of implementing a traffic calming measure are:

- Change the behavior of the users,
- Reduce traffic speeds and volumes, and
- Increase safety for pedestrians and non-motorized transportation.

The Town of Davie has established a speed table policy and procedure (Reference 5). One of the main concerns with the existing traffic calming policy is that the Town seems to limit itself to installing speed tables only, while there are other, traffic calming measures that may be more effective for a given situation. In addition, two of the three criteria to justify installing a speed table were found not to address the need to reduce high speeds and cut-through traffic.

In order to assist the Town in properly justifying the need to install traffic calming measures, the following three steps are recommended. These take into consideration both the speed and volume information to qualify a roadway to install a traffic calming measure.

### ***Step 1: Establish speed thresholds:***

Table 4 Proposed Speed Threshold

Difference between 85 <sup>th</sup> -prentile measured speed and posted speed limit	Points
Less than 4.6 mph	0.5
4.6 to 7.5 mph	1.0
7.6 to 10.5 mph	1.5
10.6 to 13.5 mph	2.0
13.6 to 16.5 mph	2.5
More than 16.5 mph	3.0

### ***Step 2: Establish volume thresholds:***

Table 5 Proposed Volume Threshold

24-Hour Tube Count	Points
500 – 1,100 vehicles	0.5
1,101 – 1,700 vehicles	1.0
1,701 – 2,300 vehicles	1.5
More than 2,300 vehicles	2.0



**Step 3: If a roadway has a point total greater than 2.5, it will qualify for a traffic calming measure.**

The Town may need to make some procedural changes to make the policy more efficient during implementation. For example, define the “affected properties” as those within half-a-mile radius of the location of the proposed traffic calming measure; or reduce the percent of households that need to agree from 70% to a lower number. Similarly, the Town may seek to broaden the types of traffic calming measures from only installing speed tables to installing other viable measure that may be a better engineering solution for the location.

**Traffic Calming Measures**

There are many traffic calming measures that can be installed to address various issues. All of the measures should be evaluated to ensure that an appropriate measure is installed and that potential negative impacts of the measure are minimized. *It is recommended that the Town first consider less intrusive measures like road striping before more intrusive measures like speed tables/humps are considered.* Traffic calming measures should be evaluated using following criteria:

- Volume reduction
- Speed reduction
- Noise impact
- Emergency and Service access, and
- Cost effectiveness

Some of the common traffic calming measures are:

- Road striping
- Speed humps/cushions
- Traffic circles
- Chokers/Bump-outs
- Intersection channelization
- Short medians
- Chicanes
- Modern roundabouts

**Modern Roundabouts**

This section provides basic information on the design and operation of modern roundabouts. As the Local Road Master Plan recommends installation of modern roundabouts, the information is provided to ensure that appropriate standards and dimensions are used when constructing them.

Modern roundabouts are a form of intersection design that provides safe and efficient flow of traffic within a certain range of traffic volumes. Numerous research studies in the U.S. and abroad have shown that the operation of roundabouts is highly dependent on its geometric design and the characteristics of the traffic volumes that are served. Detailed information on the safety, operations, and design of roundabout is provided in *Roundabouts: An Informational Guide*, published by the Federal Highway Administration (FHWA) (Reference 6). This document stipulates that before the details of the geometry are defined, three fundamental elements must be determined in the preliminary design stage:

1. The optimal roundabout size;
2. The optimal position; and
3. The optimal alignment and arrangement of approach legs.



The document also highlights following critical design principals for roundabouts:

- Speed Profiles
- Design Speed
- Vehicle Paths
- Speed-Curve Relationship
- Speed Consistency

Other design considerations like design vehicle and non-motorized design users, among others, are also discussed in detail in the document. A volume-to-capacity (v/c) ratio of 0.85 is recommended as the operational standard of a roundabout. Exception to the v/c ratio standard is recommended when long-term analysis is conducted. Figure 7 shows key features and dimensions of modern roundabout.

### ***Proposed Roundabout Standard***

In an effort to ensure that proper engineering standards are used when constructing roundabouts in and around the Town, following design guidelines are recommended to be followed:

1. *Roundabouts: An Informational Guide* published by FHWA
2. *A Policy on Geometric Design of Highways and Streets* (Green Book), published by AASHTO (Reference 7)
3. *Manual of Uniform Traffic Control Devices (MUTCD)*, published by FHWA (Reference 8)

Table 6 shows the recommended inscribed circle diameter ranges that is provided in Exhibit 6-19 of the *Roundabouts: An Informational Guide*.

**Table 6** Recommended Inscribed Circle Diameter Ranges from Exhibit 6-19 of the *Roundabouts: An Informational Guide*

Site Category	Typical Design Vehicle	Inscribed Circle Diameter Range *
Mini-Roundabout	Single-Unit Truck	45 – 80 feet
Urban Compact	Single-Unit Truck/Bus	80 – 100 feet
Urban Single Lane	WB-50	100 – 130 feet
Urban Double Lane	WB-50	150 – 180 feet
Rural Single Lane	WB-67	115 – 130 feet
Rural Double Lane	WB-67	180 – 200 feet

\* Assumes 90 degree angles between entries and no more than four legs.

Intersections of roadway facility types should consider all forms on intersection to ensure safe operating environment. It is recommended that a safety and operational analysis be conducted at all proposed/planned roundabouts before a final design is approved.





## **Figure 7** Key Modern Roundabout Features and Dimensions

**Section 3**  
Existing Roadway  
Assessment



## Existing Roadway Assessment

The Local Road Master Plan evaluated the existing conditions of the Town's roadway system. As part of the assessment, the project first reviewed past studies that have been completed for various areas of Town. Technical Memorandum 1 highlighted the results of the review and outlined the transportation elements and conclusions of the studies. The studies that were reviewed were:

- Neighborhood Traffic Management Study for Oakhill, April 2002
- Nob Hill Area Traffic Study, April 2002
- SR 7/US 441 Master Plan, July 2004
- IKEA South Florida Traffic Study, September 2004
- The Commons DRI, July 2005
- Walmart Supercenter, October 2005
- 2005 Evaluation and Appraisal Report (EAR)
- Regional Activity Center (RAC) Master Plan, March 2007
- 5-Year Capital Improvement Program, 2008-2012
- Downtown Master Plan

The transportation impact and the recommendation of these studies were incorporated in the Local Road Master Plan to the extent feasible.

## ROADWAY OWNERSHIP

All the roadways in the Town are owned either by FDOT, Broward County, Town of Davie or private entities. This section provides brief description on the ownership of the roadways by various jurisdictions. Technical Memorandum 2 provides further detail.

### ***FDOT State Roadways***

The Florida Department of Transportation (FDOT) owns major roadways in and around the Town. The roadways owned by FDOT are the most heavily traveled in the Town and provide regional mobility that is vital to the economic vitality of the region. The State Highway System (SHS) (Reference 9) represents all roads owned and maintained by the State of Florida, including roads signed as Interstate Highways, U.S. routes, and State Roads. In total, there are 16.5 miles of FDOT highways located at each edge of the Town.

The following roadways are part of the Florida Interstate Highway System (FIHS) and the State Highway System (SHS) maintained by FDOT:

- The Florida Turnpike
- I-75
- I-595 (Port Everglades Expressway)
- SR 7 (US 441)
- Griffin Road (SR 818)
- South University Drive (SR 817)
- South Flamingo Road (SR 823)
- Stirling Road



## **Broward County Roads**

Broward County owns four main roadways in Town of Davie, three of which are north-south roadways. Parts of Griffin Road and Sterling Road are also owned by the county. However, majority of these roadways are owned by the state. The four major county roadways in Town of Davie are:

- **Nob Hill Road**
- **Pine Island Road**
- **Davie Road**
- **Nova Drive**

## **Local Roadways**

The Town of Davie owns and maintains approximately 290 miles of roadway, 110 miles of recreational trail and 52 miles of equestrian trail (Reference 10). The majority of the roadways owned by the Town are local roadways or collectors. In fact, the Town does not own any arterial or higher classification roadways. Nevertheless, some of the major collectors function like arterials, providing regional access, like Hiatus Road. The major roadways owned and maintained by the Town are:

- **SW 14<sup>th</sup> Street** is a two-lane east-west roadway that provides access to the residential areas in the northwest part of the Town. It is the main east-west roadway in the area and connects SW 130<sup>th</sup> Avenue, SW 136<sup>th</sup> Avenue, SW 154<sup>th</sup> Avenue and to City of Weston. It has potential to provide further access to the east and connect to Flamingo Road, or to connect Flamingo to Hiatus Road.
- **SW 136<sup>th</sup> Avenue** is a four-lane roadway from SR 84 to SW 6<sup>th</sup> Street. It provides access to higher density residential development, including the Western High School in the north end. On the south end, it is a two-lane roadway and provides access to low density residential developments. It should be noted that the intersection of SW 14<sup>th</sup> Street/SW 136<sup>th</sup> Avenue is a single-lane roundabout with southbound right-turn by-pass lane.
- **SW 154<sup>th</sup> Avenue (Shotgun Road)** is a two-lane roadway that runs parallel to I-75. It provides access to residential developments to the east and also to the City of Weston. In the 2002 Oakhill Neighborhood Traffic Management Study, the roadway was identified as the roadway with highest average recorded 85<sup>th</sup>-percentile speed at 54.9 mph. It should also be noted that some residential developments have only one access point to the roadway, which is a potential fire access issue.
- **SW 148<sup>th</sup> Avenue** is a three-lane roadway that connects SR 84, south of I-595, to SW 14<sup>th</sup> Street. It provides access to residential developments along the roadway. In the 2002 Oakhill Neighborhood Traffic Management Study, this roadway was identified as the roadway with the highest speed differential between posted speed and 85<sup>th</sup>-percentile speed measured. SW 148<sup>th</sup> Avenue does not connect to Orange Drive.



- **Shenandoah Parkway** is a two-lane roadway that provides access to several residential developments between SW 148<sup>th</sup> Avenue and SW 136<sup>th</sup> Avenue. I-595 access is off SW 136<sup>th</sup> Avenue.
- **SW 130<sup>th</sup> Avenue** is a two-lane north-south roadway that connects SR 84 to SW 36<sup>th</sup> Court. It provide access to single family residential developments along the roadway.
- **SW 26<sup>th</sup> Street** is a two-lane east-west roadway that connects SW 148<sup>th</sup> Avenue to SW 136<sup>th</sup> Avenue, and from Flamingo Road to Hiatus Road. It provides access to low density residential developments. The roadway has the potential to be extended (maybe to Shotgun Road or to Flamingo Road) and improve the east-west connectivity in the area.
- **SW 142<sup>nd</sup> Avenue** is a two-lane north-south roadway that connects SW 26<sup>th</sup> Street to Orange Drive. It provides access to the Davie landfill and some low density residential developments.
- **Hiatus Road** is one of the main north-south roadways owned by Town of Davie. It provides access from I-595 to the north to Orange Drive to the south. It primarily serves residential developments along the roadway. A new roundabout will be installed at SW 26<sup>th</sup> Street.
- **Orange Drive** is a two/three-lane east-west roadway that functions as access roadway to the residential developments located north of Griffin Road and the canal. It helps to reduce local traffic on Griffin Road. Improvements at Orange Drive and Hiatus Road were recently completed. A few areas are not continuous: University Drive, Pine Island, Flamingo Road. A new bridge is being built east of SW 148<sup>th</sup> Avenue.
- **SW 30<sup>th</sup> Street** is one of the main accesses to Nova University and the SFEC. It connects South Pine Island Road, University Drive and College Avenue.
- **SW 39<sup>th</sup> Street** also provides access to Nova University and the SFEC. It connects University Drive to Davie Road and also serves as the southern boundary of the SFEC.
- **College Avenue** is the main north-south roadway in the SFEC campus. It is a three-lane roadway that provides access to major buildings and sport facilities. College Avenue is located within the RAC study area and some improvements are expected to be recommended in this study.
- Other major roads owned by the Town of Davie are: **SW 76<sup>th</sup> Ave, SW 70<sup>th</sup> Ave, SW 58<sup>th</sup> Ave, SW 36<sup>th</sup> Ave, SW 20<sup>th</sup> Ave.**

Figure 8 shows the jurisdictional responsibility of the major roadways in the Town.



## **Figure 8** Jurisdictional Responsibility



## OPERATIONAL ANALYSIS

The Local Road Master Plan focuses on the operation, safety and connectivity of the local roadway system in Davie. It does not focus on the County and State facilities. However, a majority of the transportation issues in the Town are on County and State facilities since they carry a majority of the traffic volume. In addition, any changes to the local road network would impact the operation and safety of the County and State facilities. Hence, to the extent that the County and State facilities are impacted, the Local Road Master Plan evaluates the impact on those facilities.

### ***Proposed Study Intersections and Roadways***

This section provides the results of the operational analysis conducted on the study roadways and intersections. The operation analysis is based on the Annual Average Daily Traffic (AADT) analysis and the peak hour turning movement analysis. It is focused on the local roadways owned by the Town as much as possible. However, since the majority of traffic volumes are carried by the collectors and arterials which are owned by the county and state, to the extent that data are available, analysis results on the county and state facilities are also reported.

The study roadways and intersections were identified based on extensive review of past studies and discussion with Town staff. Technical Memorandum 1 provided the detail reviews and documented the procedure used to determine the initial list of study roadways and intersections. The list was discussed with Town staff and updated based on the comments received. The study roadways and intersections are focused on the facilities owned by Town of Davie. This primarily includes collector and local roadways. The traffic congestion concerns on the major arterials owned by the county and state are anticipated to be addressed by these respective jurisdictions. The analysis takes into consideration county and state facilities to the extent that the data are readily available. Table 7 shows the list of study roadways and their characteristics, including some county and state roadways.

The study intersections are also listed below. These are major intersections that are anticipated to experience traffic operational concerns.

#### Study Roadways

- |  |  |
|--|--|
| 1. SW 154 <sup>th</sup> Avenue from SW 14 <sup>th</sup> St to SW 148 <sup>th</sup> Ave | 6. Nob Hill Road from Griffin Rd to SW 36 <sup>th</sup> St   |
| 2. SW 148 <sup>th</sup> Avenue from SR 84 to SW 14 <sup>th</sup> St                    | 7. S Pine Island Rd from SR 84 to Nova Drive                 |
| 3. SW 136 <sup>th</sup> Avenue from SR 84 to SW 14 <sup>th</sup> St                    | 8. University Drive from SR 84 to Griffin Rd                 |
| 4. SW 130 <sup>th</sup> Avenue from SR 84 to SW 36 <sup>th</sup> Court                 | 9. SW 76 <sup>th</sup> Avenue from Griffin Rd to Stirling Rd |
| 5. Hiatus Road from SR 84 to Orange Dr   | 10. College Avenue from SR 84 to SW 39 <sup>th</sup> St      |



- |  |   |
|--|---|
| 11. Davie Road from SR 84 to University Drive  | 16. SW 30 <sup>th</sup> Street from S Pine Island Rd to College Avenue          |
| 12. SW 58 <sup>th</sup> Avenue from Griffin Road to Stirling Road                              | 17. SW 39 <sup>th</sup> Street from University Drive to Davie Road              |
| 13. SW 14 <sup>th</sup> Street from I-75 to SW 130 <sup>th</sup> Avenue                        | 18. SW 36 <sup>th</sup> Court from SW 130 <sup>th</sup> Avenue to Flamingo Road |
| 14. Nova Drive from S Pine Island Rd to Davie Road   | 19. Orange Drive from SW 142 <sup>nd</sup> Avenue to S Flamingo Road            |
| 15. SW 26 <sup>th</sup> Street from SW 148 <sup>th</sup> Avenue to SW 130 <sup>th</sup> Avenue | 20. Orange Drive from Davie Road to SR 7  |

### Study Intersections

- |   |  |
|---|--|
| 1. SW 154 <sup>th</sup> Avenue/ SW 14 <sup>th</sup> Street  | 12. University Drive/ SW 39 <sup>th</sup> Street |
| 2. SW 148 <sup>th</sup> Avenue/ SW 154 <sup>th</sup> Avenue | 13. College Avenue & Nova Drive                  |
| 3. SW 148 <sup>th</sup> Street/ SW 14 <sup>th</sup> Street  | 14. College Avenue/ SW 30 <sup>th</sup> Street   |
| 4. SW 136 <sup>th</sup> Street/ SW 14 <sup>th</sup> Street  | 15. College Avenue/ SW 39 <sup>th</sup> Street   |
| 5. SW 136 <sup>th</sup> Avenue/ SW 26 <sup>th</sup> Street  | 16. Davie Road & Nova Drive                      |
| 6. Flamingo Road/ SW 26 <sup>th</sup> Street                | 17. Davie Road/ Orange Drive                     |
| 7. Flamingo Road/ SW 36 <sup>th</sup> Street                | 18. Davie Road/ Griffin Road                     |
| 8. Hiatus Road/ SW 26 <sup>th</sup> Street                  | 19. Davie Road/ Stirling Road                    |
| 9. Nob Hill Road/ SW 13 <sup>th</sup> Street                | 20. SR 7/ Oakes Road                             |
| 10. University Drive/ SW 24 <sup>th</sup> St/Nova           | 21. SR 7/ Orange Drive                           |
| 11. University Drive/ SW 30 <sup>th</sup> Street            | 22. University Drive/ SW 36 <sup>th</sup> Street |

Figure 9 shows the study roadways and intersections.

### **Annual Average Daily Traffic**

The planning level analysis of roadways is usually conducted through the evaluation of the annual average daily traffic (AADT) on the roadway. The AADT represents the average volume of traffic traveling on a roadway on a normal day. Broward County and FDOT collects extensive AADT data on many county, state, and some local roadways. The AADT analysis used the data obtained from Broward County and FDOT. Where data were found to be missing, new 24-hour tube counts were conducted on some local roadways and converted to AADT's using seasonal and axle adjustment factors.





Figure 10 shows the profile to the 24-hour tube counts collected on some of the collector and local roadways. The figure shows the morning and evening peaking characteristics of the traffic volume on the roadways. SW 14th Street has the highest traffic volume and peaking character.

**Table 7 Study Roadways for Local Road Master Plan**

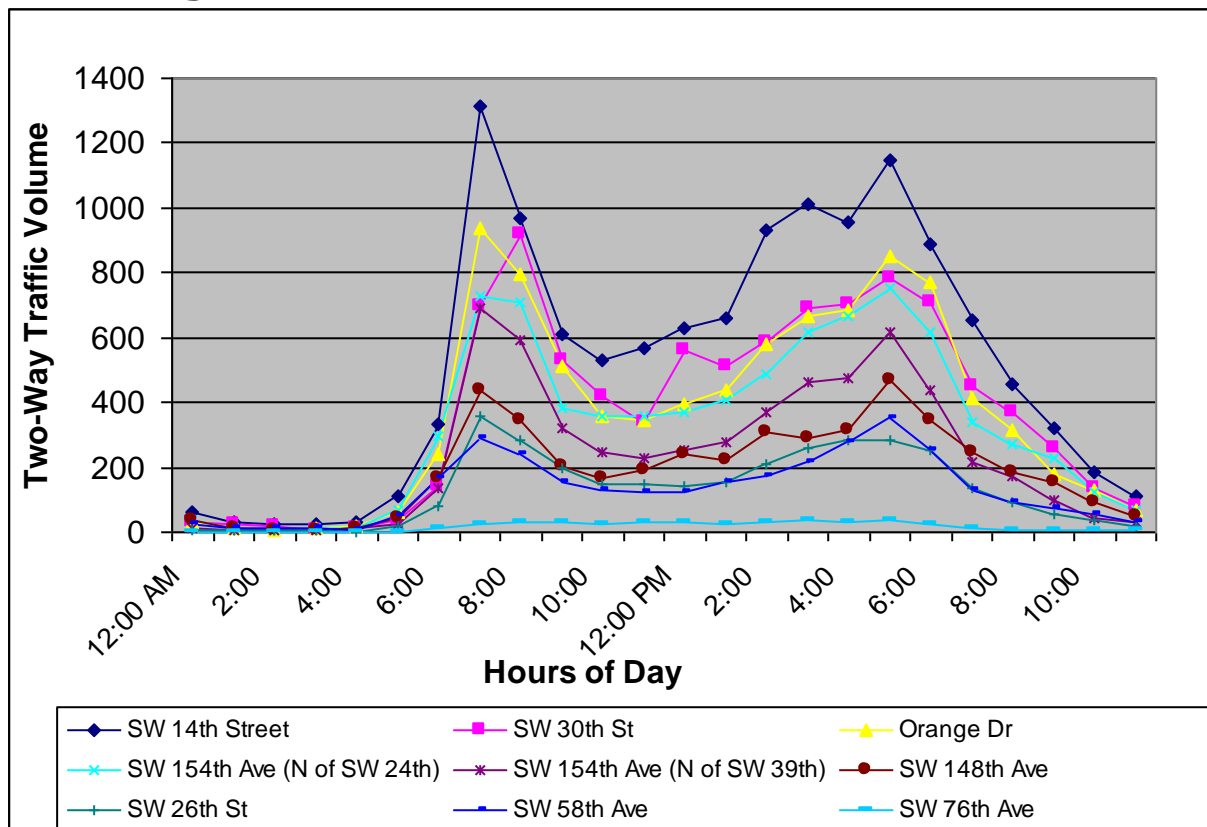
<b>Roadways</b>	<b>From</b>	<b>To</b>	<b>Cross-Section</b>	<b>Posted Speed</b>	<b>Sidewalk</b>	<b>Shoulder/ Bike Lane</b>
SW 154 <sup>th</sup> Avenue	SW 14 <sup>th</sup> Street	SW 148 <sup>th</sup> Avenue	2LU	45 mph	Yes - East	No
SW 148 <sup>th</sup> Avenue	SR 84	SW 14 <sup>th</sup> Street	3LU	45 mph	Yes – Both	No
SW 136 <sup>th</sup> Avenue	SR 84	SW 6 <sup>th</sup> Street	4LD	40 mph	Yes- West	No
	SW 6 <sup>th</sup> Street	SW 14 <sup>th</sup> Street	2LU	40 mph	Partial -Both	No
SW 130 <sup>th</sup> Avenue	SR 84	SW 36 <sup>th</sup> Court	2LU	40 mph	Yes – East	No
Hiatus Road	SR 84	SW 26 <sup>th</sup> Street	3LU	45 mph	Yes - Both	No
	SW 26 <sup>th</sup> Street	Orange Drive	3LU	35 mph	Partial	No - Curb
Nob Hill Road	Griffin Road	SW 36 <sup>th</sup> Street	4LD	40 mph	Yes	No
S Pine Island Rd	Nova Drive	SR 84	4LD	40 mph	Yes – Partial	No
University Drive	SR 84	Griffin Road	6LD	45 mph	Yes – Partial	No - Curb
College Avenue	SR 84	SW 39 <sup>th</sup> Street	3LU	30 mph	Yes – Both	No
Davie Road	SR 84	Griffin Road	4LU	30 mph	Yes – Both	No - Curb
	Stirling Road	University Drive	2LU	30 mph	Yes – Partial	No
SW 14 <sup>th</sup> Street	I-75	SW 130 <sup>th</sup> Avenue	2LU	40 mph	Yes - Both	No
Nova Drive	S Pine Island Road	Davie Road	2LU	30 mph	Yes – Partial	No
SW 30 <sup>th</sup> Street	S Pine Island Road	College Avenue	3LU	30 mph	Yes – North	No
SW 39 <sup>th</sup> Street	University Drive	Davie Road	2LU	30 mph	Yes – South	No
SW 36 <sup>th</sup> Court	SW 130 <sup>th</sup> Avenue	Flamingo Road	2LU	40 mph	Yes – South	No
SW 26 <sup>th</sup> Street	SW 148 <sup>th</sup> Avenue	SW 130 <sup>th</sup> Avenue	2LU	45 mph	Yes – North	No
Orange Drive	SW 142 <sup>nd</sup> Avenue	S Flamingo Road	2LU	45 mph	Yes – Both	No
Orange Drive	Davie Road	SR 7	3LU	35 mph	Yes – North	No
SW 76 <sup>th</sup> Avenue	Griffin Road	Stirling Road	2LU	30 mph	Partial – East	No
SW 58 <sup>th</sup> Avenue	Griffin Road	Stirling Road	2LU	30/55 mph	Partial – East	No



## **Figure 9** Local Study Roadways and Intersections



**Figure 10** 2008 24-Hour Traffic Profile at Major Local Roadways



### Local Roadway Operation

The Broward County Roadway Capacity and Level-of-Service study (Reference 11) classifies most of the local roadways as “Other Signalized Roadway”, with a service volume of 10,000 AADT for LOS “D” according to the FDOT Quality/Level of Service Handbook (Reference 12). The Input Value Assumption data provided in the FDOT Q/LOS handbook does not provide posted speed or signal per mile information for “Other Signalized Roadway”. This category is inadvertently used as catch-all classification for roadways that do not fit other roadway categories.

The roadway characteristics of most of the local roadways in the Town are semi-rural or semi-urban in nature. They generally accommodate free-flow movement with no traffic signal control. Hence, the effective green ratio (g/C) of 0.31 used as input value for “Other Signalized Roadway” is considered low, especially when compared to g/C of 0.41 used as input value for “Major City/County Roadway” classification. Hence, it is comprehensible that the main local roadways in Town should be classified as “Major City/County Roadway” with a service volume of 14,600 AADT for LOS “D” for two-lane undivided roadway. Table 8 lists the roadways, number of lanes, AADT and corresponding LOS when classified as a “Major City/County Roadway”. Figure 11 shows the 2008 level-of-service of the study roadways.



**Table 8 AADT Data and Analysis Results**

Roadway	From	To	2008 AADT	Through Lanes	LOS
SW 154 <sup>th</sup> Avenue	SW 14 <sup>th</sup> Street	SW 26 <sup>th</sup> St	7,690	2	C
	SW 26 <sup>th</sup> St	SW 148 <sup>th</sup> Ave	5,563	2	C
SW 148 <sup>th</sup> Avenue	SR 84	SW 14 <sup>th</sup> Street	4,409	2	C
SW 136 <sup>th</sup> Avenue	SR 84	SW 6 <sup>th</sup> Street	18,415	4	C
	SW 6 <sup>th</sup> Street	SW 14 <sup>th</sup> Street	11,028	2	<b>D</b>
SW 130 <sup>th</sup> Avenue	SR 84	SW 14 <sup>th</sup> Street	4,890	2	C
	SW 14 <sup>th</sup> Street	SW 36 <sup>th</sup> Court	5,826	2	C
Hiatus Road	SR 84	SW 14 <sup>th</sup> Street	12,173	2	<b>D</b>
	SW 14 <sup>th</sup> Street	Orange Drive	6,034	2	C
Nob Hill Rd	SW 39 <sup>th</sup> Street	Griffin Road	31,112	4	<b>E</b>
S Pine Island Rd	SR 84	Nova Drive	34,000	4	<b>F</b>
University Drive	SR 84	Nova Drive	67,000	6	<b>F</b>
	Nova Drive	Griffin Road	50,000	6	<b>E</b>
College Avenue	SR 84	SW 30 <sup>th</sup> Street	14,358	2	<b>D</b>
	SW 30 <sup>th</sup> Street	SW 39 <sup>th</sup> Street	14,566	2	<b>D</b>
Davie Road	SR 84	Nova Drive	43,500	4	<b>F</b>
	Nova Drive	Griffin Road	32,700	4	<b>E</b>
	Stirling Road	University Drive	20,900	2	<b>F</b>
SW 14 <sup>th</sup> Street	I-75	SW 154 <sup>th</sup> Avenue	18,207	2	<b>E</b>
	SW 154 <sup>th</sup> Avenue	SW 148 <sup>th</sup> Avenue	12,160	2	<b>D</b>
	SW 148 <sup>th</sup> Avenue	SW 136 <sup>th</sup> Avenue	10,404	2	<b>D</b>
	SW 136 <sup>th</sup> Avenue	SW 130 <sup>th</sup> Avenue	4,370	2	C
Nova Drive	S Pine Island Rd	University Drive	10,700	2	<b>D</b>
	University Drive	Davie Road	21,700	2	<b>F</b>
SW 30 <sup>th</sup> Street	S Pine Island Rd	University Drive	8,741	2	C
	University Drive	College Avenue	11,366	2	<b>D</b>
SW 39 <sup>th</sup> Street	University Drive	College Avenue	6,242	2	C
	College Avenue	Davie Road	10,508	2	<b>D</b>
SW 36 <sup>th</sup> Court	SW 130 <sup>th</sup> Avenue	Flamingo Road	6,138	2	C
SW 26 <sup>th</sup> Street	SW 142 <sup>nd</sup> Avenue	SW 130 <sup>th</sup> Avenue	3,007	2	C
Orange Drive	SW 142 <sup>nd</sup> Avenue	S Flamingo Road	8,566	2	C
Orange Drive	Davie Road	SR 7	12,954	2	<b>D</b>
SW 76 <sup>th</sup> Avenue	Griffin Road	Stirling Road	413	2	C
SW 58 <sup>th</sup> Avenue	Griffin Road	Stirling Road	3,054	2	C



## **Figure 11**      2008 Study Roadway AADT and Traffic Conditions



The section below describes the study roadways with LOS D or worse.

**SW 136<sup>th</sup> Avenue**, north of SW 6<sup>th</sup> Street carries high volume of traffic at 18,415 AADT. However, the section of the roadway is four-lane wide and able to accommodate the traffic. Hence, the roadway operates at LOS C. SW 136<sup>th</sup> Avenue, south of SW 6<sup>th</sup> Street, is a two-lane roadway and operates at LOS D even though it carries lower AADT.

The northern part of **Hiatus Road** handles relatively high traffic volume from the residential neighborhood it serves. It carries approximately 12,173 AADT and operates at LOS D.

**South Pine Island Road**, from Nova Drive to SR 84 operates at LOS F. The roadway is a County facility and is anticipated to be widened in near future to accommodate the traffic demand.

**University Drive** operates at LOS F from SR 84 to Nova Drive, and LOS E from Nova Drive to Orange Drive. It is a state facility and serves regional traffic, as well as traffic from adjacent developments and the South Florida Education Center (SFEC). It is a six-lane roadway which will likely require major capacity mitigation or concerted transportation demand management program for major institutions in the area to improve the operation of the roadway.

**College Avenue** is the main north-south roadway serving the educational institutes of SFEC. It is a three-lane roadway and operates at LOS D. However the AADT volumes 14,358 and 14,566 are very close to the LOS E threshold of 14,600.

**Davie Road** operates at LOS F from SR 84 to Nova Drive and from Stirling Road to University Drive. It operates at LOS E from Nova Drive to Griffin Road. From SR 84 to Nova Drive, the roadway serves high volume of traffic to and from SFEC. The segment from SR 84 to Nova Drive is planned to be widened to six-lane facility in the future. From Nova Drive to Griffin Road, the roadway provides access to commercial developments and downTown Davie. The section from Stirling Road to University Drive the roadway is a two-lane facility which results in poor level-of-service.

**SW 14<sup>th</sup> Street** carries a very high volume of traffic directly east of I-75 with an AADT of 18,207 and a LOS E. Between SW 154<sup>th</sup> Avenue to SW 136<sup>th</sup> Avenue the AADT is still high (12,160 and then 10,404) with a LOS D. On the eastern segment of the road, the volume drops down to 4,370 vehicles per day corresponding to an acceptable LOS C.

**Nova Drive** serves as the main east-west roadway providing access to the educational institution that make up the SFEC from I-595. As a result, the roadway operates at LOS F from Davie Road to University Drive and LOS D from University Drive to Pine Island Road. It is a two-lane roadway with turn-lanes. The roadway is not anticipated to be widened due to concerns raised by residents. Furthermore, widening the roadway reduces the feel of an educational campus.

**SW 30<sup>th</sup> Street** serves as one of the main entrances to Nova Southeastern University. It operates at LOS D (AADT 11,366) between University Drive and College Avenue.

**SW 39<sup>th</sup> Street** serves Nova High and Elementary schools in the area. It operates at LOS D (ADT 10,508) between College Avenue and Davie Road.

**Orange Drive** carries a relatively high AADT (12,954) between Davie Road and SR 7 and operates at LOS D. At the Florida Turnpike intersection, it serves the southbound off-ramp and northbound



on-ramp traffic signals which is the main reason for the high volume on the roadway. All of the other roadways or segments of roadways show an acceptable Level of Service C.

### ***Intersection Operation***

The intersection operational analysis was conducted based on the turning movement counts collected in January 2008 and data obtained from background documents. The data obtained from RAC Master Plan, The Commons DRI and other sources, were increased by two-percent annual growth rate to arrive at 2008 turning movement counts. The analysis was performed in accordance with the procedures stated in the 2000 Highway Capacity Manual (Reference 13). The operation of the SW 136<sup>th</sup> Avenue/SW 14<sup>th</sup> Street intersection is analyzed using the methodology described in the FHWA *Roundabouts: An Informational Guide* (Reference 6).

Figures 12 and 13 shows the results of the intersection operational analysis for weekday a.m. and p.m. peak hours, respectively. As shown in the figures, the unsignalized intersection of Flamingo Road/SW 26<sup>th</sup> Street intersection currently operates at LOS F and has a volume-to-capacity (v/c) ratio of greater than 1.0 during both the weekday a.m. and p.m. peak hour conditions. The intersection has high traffic volume in the north-south direction, as well as relatively high speed at 55 mph. Due to the landscaped median, the intersection also has limited intersection sight distance to the north, making it unsafe for the minor street westbound left-turning movement. The intersection will likely need a traffic signal in the future. A signal warrant analysis will be conducted to determine whether the intersection will meet the warrants.

In addition, the University Drive/SW 30<sup>th</sup> Street intersection operates at LOS E and has a v/c ratio of greater than 1.0 during the weekday a.m. peak hour. The southbound left-turning traffic volume is high and requires either a capacity improvement at the intersection or implement plans to reduce the demand for the movement.

The University Drive/SW 24<sup>th</sup> Street/Nova Drive intersection operates at LOS E and has a v/c ratio of greater than 1.0 during the weekday p.m. peak hour. An westbound right-turn overlap phase is needed at the intersection to ensure that the intersection operate acceptably.

The Davie Road/Stirling Road intersection operates at LOS E and has a v/c ratio of greater than 1.0 during the weekday p.m. peak hour. The intersection requires additional turn lanes to accommodate the demand at the intersection. However, there are right-of-way constraints at all four quadrants of the intersection that limit capacity improvements.



## **Figure 12**      2008 Weekday AM Peak Hour Traffic Conditions





## **Figure 13**      2008 Weekday PM Peak Hour Traffic Conditions



## Safety Analysis

The safety analysis of the roadway network in Town of Davie was conducted by analyzing the safety data providing by the Davie Police Department. The data included the number of crashes at various locations around the Town from 2002 to 2006. However, the data did not include the characteristics of the crashes (the types of crashes, severity, or specific locations). For this reason, a limited safety analysis could be conducted on the roadways. Table 9 shows the number of crashes for the study roadways where data was available. Crash data are provided in Tech Memo 2.

As shown in Table 9, **College Avenue** experiences very high number of crashes per year (an average of 105.6 crashes per year in the last 5 years) and 70.4 crashes/year/mile. The roadway provides access to several parking lots that serve various educational institutes in the vicinity.

Similarly, **SW 39<sup>th</sup> Street**, **SW 30<sup>th</sup> Street**, **SW 148<sup>th</sup> Avenue**, **Orange Drive** and **SW 136<sup>th</sup> Avenue** have greater than 20 crashes/year/mile. Currently, speed tables are being installed on SW 148<sup>th</sup> Avenue to reduce vehicular speed. A detailed review of the crash type and location is needed to determine potential mitigation measures at all the high crash roadways. However, the data obtained for the study did not provide such detailed information.

**Table 9 Roadway Average Number of Crash Per Mile**

Study Roadways	Segment	2002	2003	2004	2005	2006	Five-yr Average	Crash/ year/ mile
College Avenue	SR 84 to SW 39th Street	106	121	98	90	113	105.6	70.4
SW 39 <sup>th</sup> Street	University Drive to Davie Rd	34	34	36	44	28	35.2	29.3
SW 30 <sup>th</sup> Street	S Pine Island Road to College Avenue	49	46	47	49	47	47.6	27.2
SW 148 <sup>th</sup> Avenue	SR 84 to SW 14th Street	18	25	22	24	32	24.2	24.2
Orange Drive	Davie Road to SR 7	35	32	28	24	36	31.0	20.7
SW 136 <sup>th</sup> Avenue	SR 84 to SW 14 <sup>th</sup> Street	65	65	64	59	56	61.8	20.6
SW 14 <sup>th</sup> Street	I-75 to SW 136 <sup>th</sup> Avenue	27	28	20	25	28	25.6	17.1
SW 36 <sup>th</sup> Court	SW 130 <sup>th</sup> Avenue to Flamingo Road	7	11	6	3	6	6.6	13.2
Hiatus Road	SR 84 to Orange Drive	20	33	34	19	32	27.6	9.2
SW 26 <sup>th</sup> Street	SW 142 <sup>nd</sup> Avenue to SW 130 <sup>th</sup> Avenue	9	5	8	3	4	5.8	5.8
Orange Drive	SW 142 <sup>nd</sup> Avenue to S Flamingo Road	9	8	11	6	8	8.4	5.6
SW 130 <sup>th</sup> Avenue	SR 84 to SW 36th Court	13	19	15	15	11	14.6	5.3
SW 58 <sup>th</sup> Ave	Griffin Road to Stirling Road	9	8	2	7	6	6.4	4.9
SW 154 <sup>th</sup> Avenue	SW 14 <sup>th</sup> St to SW 148 <sup>th</sup> Ave	15	18	13	6	12	12.8	5.1
SW 76 <sup>th</sup> Ave	Griffin Road to Stirling Road	3	2	3	3	5	3.2	2.5



## Study Intersection Crash Review

Historic crash data were examined to determine whether safety deficiencies exist at the study intersections in Town of Davie. Crash data for the study intersections were obtained from the Town of Davie's Police Department for the five-year period from 2002 to 2006. The data included number of crashes at the intersection. The data did not provide detail information on the crash type and crash severity. Hence, a detailed analysis of the crashes was not able to be conducted. Table 10 shows intersection crash rate for the intersection in million-entering-vehicles (MEV) per year.

**Table 10 Study Intersection Crash Rate Summary**

Study Intersection	2002	2003	2004	2005	2006	Five-yr Average	Peak Hour TEV	Crashes/ MEV
SW 14 <sup>th</sup> Street/SW 154 <sup>th</sup> Avenue (Shotgun Road)	3	6	6	11	5	6.2	2,018	0.84
SW 148 <sup>th</sup> Avenue/Shotgun Road	0	0	0	1	0	0.2	638	0.86
SW 14 <sup>th</sup> Street/SW 148 <sup>th</sup> Avenue	5	4	0	1	3	2.6	1,087	0.65
SW 14 <sup>th</sup> Street/SW 136 <sup>th</sup> Avenue	1	1	3	3	2	2	995	0.55
SW 136 <sup>th</sup> Avenue/SW 26 <sup>th</sup> Street	2	1	0	0	0	0.6	501	0.33
Flamingo Road/26 <sup>th</sup> Street	0	1	0	0	0	0.2	3,101	0.02
Hiatus Road/SW 26 <sup>th</sup> Street	0	3	2	1	1	1.4	789	0.48
Nob Hill Road/SW 13 <sup>th</sup> Street	1	0	2	4	1	1.6	2,555	0.17
University Drive/Nova Drive	33	32	38	45	49	39.4	6,186	<b>1.74</b>
University Drive/SW 30 <sup>th</sup> Street	11	11	14	23	23	16.4	5,624	0.79
University Drive/SW 39 <sup>th</sup> Street	8	5	6	9	6	6.8	4,073	0.46
College Avenue/SW 30 <sup>th</sup> Street	2	6	3	4	2	3.4	1,928	0.48
College Avenue/SW 39 <sup>th</sup> Street	2	2	1	1	3	1.8	1,518	0.32
Davie Road/Orange Drive	10	11	13	9	13	11.2	3,004	<b>1.02</b>
Davie Road/Griffin Road	5	6	5	11	3	6	5,066	0.32
Davie Road/Stirling Road	4	12	11	10	15	10.4	5,535	0.51
Oakes Road/SR 7	5	3	2	6	1	3.4	5,110	0.18
Orange Drive/SR 7	3	13	10	4	8	7.6	4,944	0.42

TEV: Total Entering Vehicles; MEV: Million-Entering-Vehicles

As shown in Table 10, the intersection of University Drive/Nova Drive and Davie Road/Orange Drive were found to experience crash rates of more than 1.0 MEV. This indicates that these intersections have a high number of crashes for the number of vehicles entering the intersection. These intersections will require a detailed safety review and potential safety improvements to reduce the crash rates.



## **Figure 14**      Crash Analysis Results

## **Section 4**

### Future Roadway Condition Assessment



## Future Traffic Volume Forecast and Operation

One of the main purposes of the Local Road Master Plan is to ensure that the local roadways adequately address the future transportation needs of the Town. In order to evaluate the future traffic conditions, future traffic volumes were projected on the study roadways and intersections. The project reviewed historical growth of Davie's population and traffic volume on major roadways. The historical traffic volume growth varied through-out the Town. As such, the traffic forecasts were developed based on the *2006 Roadway Capacity and Level-of-Service Analysis for 2005 and 2030* (Reference 11) prepared by the Broward County Metropolitan Planning Organization (BCMPO). This growth forecast is based on the Florida Standard Urban Transportation Model Structures (FSUTMS) model run in August 2006. It uses "socioeconomic data and incorporates proposed/planned road improvements to simulate future traffic demands". Some of the growth rate assumptions used in the BCMPO study were updated based on the 2008 AADTs. Table 11 provides the growth rates and the 2030 AADTs and corresponding LOS based on the service volumes provided in the FDOT Q/LOS handbook (Reference 12). Similarly, Figure 15 shows the data in graphical form.

As show in Table 11 and Figure 15, the following roadways are anticipated to operate at LOS E and F in 2030.

**SW 136<sup>th</sup> Avenue**, north of SW 14<sup>th</sup> Street and south of SW 6<sup>th</sup> Street is anticipated to operate at LOS E because the roadway has only one lane in each direction. SW 136<sup>th</sup> Avenue will continue to serve as one of the major roadways in the area. Hence, the roadway needs to be widened to four-lanes in the future to accommodate the demand. Alternatively, if SW 14<sup>th</sup> Street is extended to Flamingo Road and Hiatus Road, some of the demand on SW 136<sup>th</sup> Avenue may be diverted to these roadways. However, given the location of I-595 ramp on SW 136<sup>th</sup> Avenue, the need to widen the roadway to four lanes is anticipated to remain.

**Hiatus Road**, north of SW 14<sup>th</sup> Street is anticipated to operate at LOS F. This roadway is anticipated to experience high growth due to the increased demand from residential developments it serves. This two-lane portion of the roadway would need to be widened to four-lanes to accommodate the anticipated increase in traffic demand.

**Nob Hill Road**, from Griffin Road to around SW 36<sup>th</sup> Street is anticipated to operate at LOS F. The increase in traffic can be attributed to continued growth in residential/commuter traffic on the roadway. It is not recommended to widen the roadway to six lanes as it is anticipated to encourage more traffic on the roadway.

**South Pine Island Road** will continue to operate at LOS F if it is to remain as a four-lane roadway. It is a County facility and is planned to be widened to a six-lane roadway. The widening is anticipated to provide adequate capacity to accommodate 2030 traffic volume on the roadway.



**Table 11 2030 AADT and LOS Results at Study Roadways**

Roadway	From	To	2008 AADT	Growth Rate (Linear)	2030 AADT	Through Lanes	LOS
SW 154 <sup>th</sup> Avenue	SW 14th Street	SW 26th St	7,690	1.76%	11,200	2	D
	SW 26th St	SW 148th Ave	5,563	1.11%	6,900	2	C
SW 148 <sup>th</sup> Avenue	SR 84	SW 14 <sup>th</sup> Street	4,409	1.52%	5,900	2	C
SW 136 <sup>th</sup> Avenue	SR 84	SW 6 <sup>th</sup> Street	18,415	1.78%	25,600	4	D
	SW 6 <sup>th</sup> Street	SW 14th Street	11,028	1.56%	14,800	2	<b>E</b>
SW 130 <sup>th</sup> Avenue	SR 84	SW 14 <sup>th</sup> Street	4,890	2.48%	7,600	2	C
	SW 14 <sup>th</sup> Street	SW 36 <sup>th</sup> Court	5,826	2.48%	9,000	2	C
Hiatus Road	SR 84	SW 14th Street	12,173	2.48%	18,800	2	<b>F</b>
	SW 14th Street	Orange Drive	6,034	2.48%	9,300	2	D
Nob Hill Road	Griffin Road	SW 36 <sup>th</sup> Street	24,000	2.42%	38,900	4	<b>F</b>
S Pine Island Rd	SR 84	Nova Drive	34,000	0.53%	37,900	4	<b>F</b>
University Drive	SR 84	Nova Drive	67,000	0.53%	74,800	6	<b>F</b>
	Nova Drive	Griffin Road	50,000	0.53%	55,800	6	<b>F</b>
SW 76 <sup>th</sup> Avenue	Griffin Road	Stirling Road	413	1.76%	600	2	C
College Avenue	SR 84	SW 30th Street	14,358	0.53%	16,000	3	<b>F</b>
	SW 30th Street	SW 39 <sup>th</sup> Street	14,566	0.53%	16,300	2	<b>F</b>
Davie Road	SR 84	Nova Drive	43,500	1.36%	56,600	4	<b>F</b>
	Nova Drive	Griffin Road	32,700	1.76%	45,400	4	<b>F</b>
	Stirling Road	University Drive	20,900	1.11%	26,000	2	<b>F</b>
SW 58 <sup>th</sup> Avenue	Griffin Road	Stirling Road	3,054	1.76%	4,200	2	C
SW 14 <sup>th</sup> Street	I-75	SW 154th Avenue	18,207	1.76%	25,300	2	<b>F</b>
	SW 154th Avenue	SW 148th Avenue	12,160	1.76%	16,900	2	<b>F</b>
	SW 148th Avenue	SW 136th Avenue	10,404	1.76%	14,400	2	D
	SW 136th Avenue	SW 130th Avenue	4,370	1.11%	5,400	2	C
Nova Drive	S Pine Island Rd	University Drive	10,700	0.53%	11,900	2	D
	University Drive	Davie Road	21,700	0.53%	24,200	2	<b>F</b>
SW 26 <sup>th</sup> Street	SW 142 <sup>nd</sup> Avenue	SW 130 <sup>th</sup> Avenue	3,007	1.56%	4,000	2	C
SW 30 <sup>th</sup> Street	S Pine Island Rd	University Drive	8,741	0.53%	9,800	2	D
	University Drive	College Avenue	11,366	1.11%	14,100	2	D
SW 39 <sup>th</sup> Street	University Drive	College Avenue	6,242	1.11%	7,800	2	C
	College Avenue	Davie Road	10,508	1.11%	13,100	2	D
SW 36 <sup>th</sup> Court	SW 130 <sup>th</sup> Avenue	Flamingo Road	6,138	1.56%	8,200	2	C
Orange Drive	SW 142 <sup>nd</sup> Avenue	S Flamingo Road	8,566	1.76%	11,900	2	D
Orange Drive	Davie Road	SR 7	12,954	1.76%	18,000	2	<b>F</b>



## **Figure 15**      2030 AADT and Level-of-Service





**University Drive** currently operates close to its service volume and is anticipated to operate at LOS F in 2030. The roadway is currently a six-lane facility and serves as the major thoroughfare through the Town. However, the roadway should not be widened to accommodate more traffic because it will continue to divide the community. Instead, it is recommended that alternative connections, transit service and transportation demand management (TDM) measures be adopted to reduce the traffic demand on this roadway.

As a two-lane roadway, **College Avenue** is anticipated to operate at LOS F during 2030 traffic conditions. It is the main north-south roadway serving the SFEC, and therefore has the potential to serve as the center for the educational institutions. The RAC Master Plan calls for a four-lane roadway with bike lanes and wide sidewalks. It also recommends a transit line, the Davie RAC Circulator, that provides a direct connection between the light rail station and the heart of the SFEC on College Avenue. In addition, the 2008-2012 Capital Improvement Program (CIP) lists a Light Rail plan on this roadway. Likewise, the Broward County Long Range Transportation Plan indicates a plan to shorten the headways on Bus Routes 9 and 12 running along College Avenue.

**Davie Road** will operate at LOS F in 2030 as a four-lane roadway. Broward County anticipates widening the roadway to six lanes from Nova Drive to SR 84. South of Nova Drive, the roadway is anticipated to remain a four-lane facility, as shown in the RAC and the DownTown Master Plan. The roadway will have on-street parking near Orange Drive and a grid-network with the extension of SW 67<sup>th</sup> Avenue, and construction of SW 65<sup>th</sup> Avenue and SW 44<sup>th</sup> Street. The section of Davie Road from Stirling Road to University Drive will also require widening to four lanes in the future.

**SW 14<sup>th</sup> Street** is the main east-west roadway in the northwest part of the Town and is estimated to operate at LOS F from I-75 to SW 148<sup>th</sup> Avenue because of the high traffic demand on the roadway in 2030. The location of the roadway and its access to residential neighborhoods, commercial developments, and I-595 make it an ideal collector roadway. Because there are no other feasible alternatives to service the future traffic demand, the only reasonable mitigation to meet the Town's LOS D standard is to widen the roadway to a four-lane major collector.

**Nova Drive**, from Davie Road to University Drive, will remain congested at LOS F in year 2030. The roadway can be widened to a four-lane roadway with a centered left-turn lane from Davie Road to College Avenue to accommodate the demand. In addition the circulation on the roadway can be eased if additional access can be provided to the Broward Community College campus between Nova Drive and the BCC Main Entrance on Davie Road. From College Avenue to University Drive, Nova Drive would see its traffic improved if viable transit alternatives, transportation demand management, and additional connections to major roadways in the area can be provided.

**Orange Drive** from Davie Road to SR 7 provides access to Florida's Turnpike and is anticipated to operate at LOS F in 2030. In order to provide the mobility needed to support the commercial developments in the area, the roadway should be widened to a four-lane roadway from SR 7 to Florida's Turnpike. From Florida's Turnpike to Davie Road, the roadway may remain as a three-lane roadway so that a viable grid-network can be established in the area as contemplated by the DownTown Master Plan.



## **2030 Intersection LOS and Description**

The growth rate calculated for the study roadways was used in the study intersections calculation. In order to conduct a conservative analysis, the highest growth rate for any of the approaches was used to adjust the 2008 peak hour turning movement volumes to arrive at 2030 peak hour volumes. The operation of intersections was analyzed based on the methodology outlined in the 2000 Highway Capacity Manual for the signalized and unsignalized intersections. For the roundabout, the methodology outlined in the 2000 FHWA document, "Roundabout: An Informational Guide" was used. Figure 16 and 17 shows the 2030 turning movement volume estimates and level-of-service results.

As shown in the figures, the following intersections are anticipated to operate at LOS E or LOS F during the weekday peak hours.

The **SW 14<sup>th</sup> Street/SW 154<sup>th</sup> Avenue** intersection is anticipated to operate at LOS E during 2030 and over capacity during the weekday a.m. peak hour. The northbound and westbound approaches are the main critical approaches at the intersection. The northbound approach requires a right-turn lane to increase the capacity of the approach. In addition, in conjunction with improvement on SW 14<sup>th</sup> Street, the eastbound and westbound through movements require two through lanes, thus providing adequate capacity to meet the City's LOS D standard.

The **SW 14<sup>th</sup> Street/SW 148<sup>th</sup> Avenue** intersection is anticipated to operate at LOS E during weekday p.m. peak hour and at LOS E during the weekday a.m. peak hour in 2030. The southbound left turning vehicles at the intersection will have difficulties finding gaps to make their turns because of high conflicting volumes from the westbound and eastbound approaches. This results in a high control delay for this approach. A potential mitigation option is to construct a modern roundabout which will also act as a traffic calming device.

The **Flamingo Road/SW 26<sup>th</sup> Street** intersection is forecasted for 2030 to function with a LOS F for both peak hours and to operate above capacity. Both westbound and southbound left turn movements encounter very high conflicting volumes on Flamingo Road creating high delay for these movements. A MUTCD Signal Warrant analysis was conducted at the intersection and found to meet Warrant 1 (Eight-Hour Vehicular Volume), Warrant 2 (Four-Hour Vehicular Volume) and Warrant 3 (Peak Hour). Appendix "D" shows the signal warrant worksheet. Hence, a traffic signal is recommended at the intersection.

The eastbound left-through critical movement at the **Hiatus Road/SW 26<sup>th</sup> Street** intersection is anticipated to operate at a LOS F during both peak hours in 2030. The westbound and eastbound approaches are not aligned geometrically and are offset by approximately 70 feet. In order to reduce delay without penalizing the through north- and southbound movements, the best solution would be to implement a modern roundabout. This option not only improves operations but also improves the safety of the intersection by calming traffic.

The intersection of **University Drive/Nova Drive** is forecasted to operate at LOS F and over capacity during the weekday p.m. peak and LOS E during the a.m. peak period in 2030. The critical movements are: the dual southbound and the northbound left-turn movements and the westbound right turn from Nova Drive. A potential geometric improvement is the addition of a second eastbound left turn lane and an overlap phase for the westbound right turn.



The intersection of **University Drive/SW 30<sup>th</sup> Street** is anticipated to operate at LOS E and over capacity in the p.m. peak and LOS F in the a.m. peak period. The northbound through, southbound left turn and westbound right turn are the critical movements at the intersection. In order to mitigate operation, the eastbound, westbound left-turn lanes and eastbound through lanes could be widened to two lanes.

The intersection of **Davie Road/Stirling Road** is anticipated to operate at LOS F during both weekday peak hours in the year 2030. The westbound left-turn, eastbound through, northbound right-turn and southbound left-turn are the critical movements at the intersection. As corner properties of the intersection develop, right turn lanes on the north-, west- and eastbound approaches should be developed to increase the capacity of the intersection.

The intersection of **State Road 7/Oakes Road** is anticipated to operate at LOS D but over capacity during weekday p.m. peak hour, while the eastbound right-turn movement operates at LOS F in 2030. Adding a right turn lane at this location would improve the operation of this intersection. The connection of Oakes Road between the Turnpike and Davie Road would reduce the traffic on the current route used to reach the Turnpike, through Davie Road and Griffin Road.

The intersection of **State Road 7/Orange Drive** is anticipated to operate at LOS F and over capacity during weekday p.m. peak in future conditions. The presence of the canal south of Orange Drive limits the improvements on State Road 7. There is potential to provide three eastbound left-turn lanes and one eastbound right-turn lane at the intersection to improve operations. However, an alternative connection to State Road 7, north of Orange Drive, like the Oakes Road connection to Davie Road, may reduce the demand on Orange Drive. The location of the Oakes Road extension will be critical in determining the extent of reducing traffic on Orange Drive.

### **Stirling Road Interchange at Florida's Turnpike**

The construction of an interchange at Stirling Road on Florida's Turnpike is included in the Broward LRTP Cost Feasible project list. The presence of this interchange will likely reduce traffic demand at the intersections of Davie Road/Griffin Road, and Davie Road/Orange Drive. The interchange will help relieve traffic on Griffin Road and Orange Drive near the Florida's Turnpike. It could reduce cut-through traffic from Stirling Road to Griffin Road using SW 58<sup>th</sup> Avenue or other north-south Town roadways.



## **Figure 16**      2030 Traffic Conditions, Weekday AM Peak Hour



## **Figure 17**      2030 Traffic Conditions, Weekday PM Peak Hour

**Section 5**  
Proposed Future  
Roadways and Projects



## Proposed Future Roadways and Projects

One of the main goals of the Local Road Master Plan is to provide a list of projects that addresses the future transportation needs of the Town. These improvement projects include capacity and safety improvements to existing facilities as well as the construction of new roadways to provide additional capacity and increase connectivity throughout the entire roadway network. Figure 18 shows the location of the proposed projects. *It should be emphasized that the dashed lines in Figure 18 do not represent a definite alignment for any proposed connection. They are only meant to represent locations where a new connection is anticipated or recommended.* The purpose of identifying these potential future connections is to:

- provide for appropriate future roadway infrastructure to serve areas with future development potential based on existing land-use & zoning;
- reduce local traffic on County and State facilities which are congested;
- provide access to property through multiple locations; and,
- provide guidelines to Town on roadway alignments as future development occurs.

Table 12 lists the roadway improvement projects that have been identified as part of this Local Road Master Plan. The improvement projects are subdivided into three categories by timeframe: Short-term (0-5 years), Mid-term (5-10 years) and Long-term (10-20 years). The majority of the short-term improvements are mitigations that have been identified through existing conditions evaluation from Technical Memorandum 2, public comments received in the Open House, the Capital Improvement Program, the Downtown Master Plan, and the RAC. Most of the local road projects in the CIP are unfunded. However, they are included in the project list as they will be needed by 2030. These improvements are needed to address current operation and safety concerns. The mid- and long-term projects correspond to the mitigation needs identified through the future conditions analysis, the review of connectivity and accessibility issues and major projects identified in the CIP and past studies. The cost estimate does not include ROW cost.

It should be noted that the Project Numbers in Table 12 remain consistent from those seen in Technical Memorandum 5. (The lone exception is that of Project Numbers 13 and 68, as their project numbers and level of priority were switched.) During individual meetings with the Town Council and the July 2, 2008 Town Council Meeting, a number of projects were removed from the project list and others were reorganized. Therefore, Table 12 is missing the project numbers associated with the removed projects, but to remain consistent and to eliminate any confusion between past project number documentation, the project numbers do not change in Table 12. For example, it was determined during the July 2, 2008 Town Council Meeting that Project 12 would be removed from the list. To reflect this change, the project was removed but the project numbering remained the same; thus, the result is a number scheme from 11 to 13, as seen in Table 12.



**Table 12 FINAL Proposed Project List**

No.	Project Name	Project Description	Source	Cost estimate	Potential Funding Source			
					FDOT	County	Davie	Private
		<b>Short-Term (0-5 Years)</b>						
2	SW 76 <sup>th</sup> Avenue Upgrade-Phase I	Upgrade to 2-lane minor collector with bike lane from Orange Drive to SW 39 <sup>th</sup> Street	CIP	\$900,000			X	X
3	College Avenue Upgrade – Phase III	Upgrade to 4-lane major collector with bike lanes (right-of-way permitting) from 30 <sup>th</sup> St to 39 <sup>th</sup> St	Master Plan/RAC	\$3,150,000		X	X	X
4	College Avenue Upgrade – Phase I	Upgrade to 4-lane major collector with bike lanes (right-of-way permitting) from 24 <sup>th</sup> St to SR 84	Master Plan/RAC	\$3,000,000		X	X	X
4.1	College Avenue Upgrade – Phase II	Upgrade to 4-lane major collector with bike lanes (right-of-way permitting) from 24 <sup>th</sup> St (Nova Drive) to 30 <sup>th</sup> St.	Master Plan/RAC	\$3,000,000		X	X	X
5	SW 136 <sup>th</sup> Ave/SW 26 <sup>th</sup> St Roundabout	Construct a modern roundabout	Master P	\$500,000			X	
6	University Drive/Nova Drive Intersection Improvement	Add dual eastbound left-turns and westbound right-turn overlap signal phase	Master P	\$280,000*	X			
7	University Drive/SW 30 <sup>th</sup> Street Intersection Improvement	Add dual eastbound, westbound left-turns and dual eastbound through lanes	Master P	\$300,000*	X			
8	SW 154 <sup>th</sup> Avenue Safety	Install traffic calming device	Master P	\$20,000			X	X
10	SW 86 <sup>th</sup> Avenue	Install traffic calming device	Master P	\$20,000				
11	Flamingo Rd/SW 26 <sup>th</sup> Signal	Install traffic signal	Master P	\$500,000	X	X		
13	SW 20 <sup>th</sup> Street Upgrade	Upgrade to 2-lane local rural roadway from SW 130 <sup>th</sup> Ave to SW 127 <sup>th</sup> Ave	CIP	\$250,000			X	X
15	SW 127 <sup>th</sup> Avenue Upgrade	Upgrade to 2-lane local rural roadway from 21 <sup>st</sup> St to 26 <sup>th</sup> St extension	CIP	\$2,200,000			X	X
16	SW 76 <sup>th</sup> Avenue Upgrade – Phase II	Upgrade to 2-lane minor collector with bike lane from Griffin Road to Stirling Road	Master P/CIP	\$1,500,000			X	X





No.	Project Name	Project Description	Source	Cost estimate	Potential Funding Source			
					FDOT	County	Davie	Private
17	NW 75 <sup>th</sup> Avenue extension	Connect Travis Court and El Jardine to Stirling Road with 2-lane local urban roadway	Master P	\$1,600,000			X	X
18	SW 65 <sup>th</sup> Avenue	Construct new roadway from Orange Drive to SW 42 <sup>nd</sup> Street	Downtown Master P	\$1,750,000			X	X
21	SW 52 <sup>nd</sup> Avenue extension	Upgrade to 2-lane minor collector from Griffin Rd to SW 54 <sup>th</sup> St	Master P	\$5,250,000				X
23	SW 14 <sup>th</sup> Street Upgrade – Phase I	Widen to 4 lanes major collector from I-75 to SW 148 <sup>th</sup> Avenue	Master P	\$2,250,000			X	X
24	SW 14 <sup>th</sup> Street Upgrade – Phase II	Upgrade to 3-lane major collector with bike lanes from SW 148 <sup>th</sup> Ave to SW 136 <sup>th</sup> Ave with alternative design to avoid disrupting existing Equestrian path	Master P	\$2,350,000			X	X
26	SW 14 <sup>th</sup> St/SW 154 <sup>th</sup> Ave	Add turn-lanes at the intersection	Master P	\$156,000			X	X
27	SW 14 <sup>th</sup> Street Extension – Phase I	Extend from Nob Hill to Bright Road	Nob Hill Study	\$2,530,000			X	X
29	SW 14 <sup>th</sup> Street Upgrade – Phase III	Upgrade to 3-lane minor collector with bike lanes from SW 136 <sup>th</sup> Ave to SW 130 <sup>th</sup> Ave	Master P	\$876,000			X	X
33	Berkley Drive pavement upgrade	Upgrade pavement from SW 86 <sup>th</sup> Avenue to SW 83 <sup>rd</sup> Avenue	Master P	\$250,000			X	
34	SW 87 <sup>th</sup> Terrace pavement upgrade	Upgrade pavement from Berkley Drive to SW 18 <sup>th</sup> Street	Master P	\$250,000			X	
		<b>Total Short-term Estimate:</b>		\$33,382,000				



No.	Project Name	Project Description	Source	Cost estimate	Potential Funding Source			
					FDOT	County	Davie	Private
		<b>Mid-Term (5-10 years)</b>						
35	SW 154 <sup>th</sup> Avenue (Shotgun Road) Upgrade	Upgrade to minor collector with bike lanes, from SW 14 <sup>th</sup> St to SW 142 <sup>nd</sup> Avenue	Master P	\$6,150,000			X	X
36	SW 148 <sup>th</sup> Avenue Upgrade	Upgrade to minor collector with bike lanes from SR 84 to 14 <sup>th</sup> St	Master P	\$2,250,000			X	X
37	SW 136 <sup>th</sup> Ave Upgrade	Upgrade to 2-lane minor collector with bike lanes from SW 14 <sup>th</sup> St to SW 26 <sup>th</sup> St	Master P	\$2,000,000			X	X
38	Davie Road Upgrade – Phase III	Upgrade to 4/5-lane major collector with on-street parking, street lights and bike lane from SW 39 <sup>th</sup> St to Orange Drive	Master P/RAC	\$3,500,000		X	X	X
40	SW 14 <sup>th</sup> Street Extension – Phase III	Extend from SW 130 <sup>th</sup> Ave to Flamingo Road	Master P	\$3,000,000			X	X
43	SW 20 <sup>th</sup> Street safety	Install traffic calming measures	Master P	\$20,000			X	X
44	SW 24 <sup>th</sup> Street/Nova Drive Upgrade – Phase I	Upgrade to 4-lane major collector from Davie Rd to College Ave	CIP	\$2,100,000		X		X
48	SW 26 <sup>th</sup> Street Upgrade – Phase I	Upgrade to 2-lane minor collector with bike lanes from Flamingo Rd to Hiatus Rd	Master P	\$2,000,000			X	X
49	SW 27 <sup>th</sup> Court Upgrade	Upgrade to 2-lane local urban roadway from Hiatus Road to SW 106 <sup>th</sup> Terrace	CIP	\$750,000			X	X
50	SW 29 <sup>th</sup> Street Upgrade	Upgrade to 2-lane local rural roadway from 137 <sup>th</sup> Ave to 136 <sup>th</sup> Ave	CIP	\$900,000			X	X
51	SW 30 <sup>th</sup> Street Upgrade – Phase I	Upgrade to 3-lane major collector with bike lanes from College Avenue to University Drive	Master P/RAC	\$2,400,000			X	X



No.	Project Name	Project Description	Source	Cost estimate	Potential Funding Source			
					FDOT	County	Davie	Private
53	SW 39 <sup>th</sup> Street Upgrade	Upgrade to 3-lane major collector with bike lane from University Drive to Davie Road	Master P/RAC	\$3,500,000			X	X
54	SW 44 <sup>th</sup> Street connection	Construct new roadway from Davie Road to SW 67 <sup>th</sup> Avenue extension	Downtown Master P	\$1,750,000			X	X
55	Orange Drive Upgrade – Phase I	Upgrade to 5-lane major collector with shoulder from SR 7 to Florida Turnpike	Master P/EAR	\$4,250,000			X	
88	Davie Road Upgrade Phase IV	Adding bike lanes, wider sidewalks and landscape islands from Griffin Road to Stirling Road	Master Plan	\$3,600,000	X	X	X	
		<b>Total Mid-term Estimate:</b>		\$37,395,000				



No.	Project Name	Project Description	Source	Cost estimate	Potential Funding Source			
					FDOT	County	Davie	Private
		<b>Long-Term (10-20 years)</b>						
62	SW 130 <sup>th</sup> Ave Upgrade – Phase I	Upgrade to 2-lane minor collector with bike lanes from SR 84 to SW 8 <sup>th</sup> Street	Master P	\$900,000			X	X
63	SW 130 <sup>th</sup> Ave Upgrade – Phase II	Upgrade to 3-lane minor collector with bike lanes from SW 8 <sup>th</sup> St to SW 26 <sup>th</sup> Street	Master p	\$3,500,000			X	X
64	SW 130 <sup>th</sup> Ave Upgrade – Phase III	Upgrade to 2-lane minor collector with bike lanes from SW 26 <sup>th</sup> Street to SW 36 <sup>th</sup> Court	Master P	\$2,450,000			X	X
65	Hiatus Road Upgrade	Upgrade to 4-lane major collector from SR 84 to SW 14 <sup>th</sup> Street	Master P	\$12,500,000			X	X
67	College Avenue Street Car	Conduct feasibility of providing street car	RAC/CIP/Master P	\$250,000	X	X	X	X
68	SW 121 <sup>st</sup> Avenue Upgrade	Upgrade to 2-lane local rural roadway from SW 26 <sup>th</sup> Street to SW 36 <sup>th</sup> Court	CIP	\$850,000			X	X
71	SW 24 <sup>th</sup> Street/Nova Drive Upgrade – Phase III	Upgrade to a 3-lane major collector from University Drive to S Pine Island Road	Master P	\$3,750,000		X		X
72	SW 24 <sup>th</sup> Street/Nova Drive Upgrade – Phase IV	Upgrade to a 2-lane minor collector from S Pine Island Road to SW 97 <sup>th</sup> Avenue	Master P	\$1,850,000		X		X
73	SW 26 <sup>th</sup> Street Upgrade – Phase II	Upgrade to 2-lane minor collector with bike lanes from SW 142 <sup>nd</sup> Ave to 130 <sup>th</sup> Ave	Master P	\$2,225,000			X	X
74	SW 30 <sup>th</sup> Street Upgrade – Phase II	Upgrade to 2-lane minor collector with bike lanes from University Drive to S Pine Island Road	Master P	\$1,950,000			X	X
75	NW 33 <sup>rd</sup> Street extension	Extend to 2-lane local urban roadway from University Drive to Davie Rd	Master P	\$3,300,000	X	X	X	X



No.	Project Name	Project Description	Source	Cost estimate	Potential Funding Source			
					FDOT	County	Davie	Private
76	SW 36 <sup>th</sup> Street Upgrade	Upgrade to 2-lane major collector with turn lanes and bike lane from University Drive to College Avenue	Master P/RAC	\$3,250,000			X	X
77	SW 36 <sup>th</sup> Court Upgrade	Upgrade to 2-lane minor collector with bike lanes from SW 130 <sup>th</sup> Avenue to SW 121 <sup>st</sup> Avenue	Master P	\$1,850,000			X	X
78	Orange Drive Upgrade – Phase II	Upgrade to 3-lane major collector with shoulder from Florida Turnpike to Davie Road	Master P	\$2,500,000			X	
79	Orange Drive Upgrade – Phase III	Upgrade to 3-lane major collector with shoulder from Davie Road to University Drive	Master P	\$3,800,000			X	
80	SW 49 <sup>th</sup> Street upgrade	Upgrade to 2-lane local urban roadway from 58 <sup>th</sup> Ave to 52 <sup>nd</sup> Ave	Master P	\$3,525,000			X	X
83	SW 56 <sup>th</sup> Street extension	Construct 2-lane local urban roadway from 61 <sup>st</sup> Ave to 58 <sup>th</sup> Ave	Master P	\$2,100,000			X	X
86	SW 36 <sup>th</sup> Street Extension	Construct 2-lane local urban roadway from SW 92 <sup>nd</sup> Ave to Nob Hill Drive	Master P	\$5,200,000			X	X
		<b>Total Long-term Estimate:</b>		\$55,750,000				

\* Project cost not included in total



**#2 - SW 76<sup>th</sup> Avenue Upgrade – Phase I:** This project is identified in the Town's Capital Improvement Program. It is intended to upgrade the roadway to 2-lane minor collector roadway standards with bike lanes from Orange Drive to SW 39<sup>th</sup> Street for approximately 0.50 miles.

**#3 - College Avenue Upgrade – Phase III:** This project upgrades College Avenue to a 4-lane major collector roadway with bike lanes (right-of-way permitting) from SW 30<sup>th</sup> Street to SW 39<sup>th</sup> Street for approximately 0.63 mile. In addition to increasing the capacity of the roadway, the project is anticipated to encourage bicycle, pedestrian and transit modes. The improvement was also identified in the 2007 Regional Activity Center Master Plan.

**#4 – College Avenue Upgrade – Phase I:** This project upgrades College Avenue to a 4-lane major collector roadway with bike lanes (right-of-way permitting) from SR84 to SW 24<sup>th</sup> Street (Nova Drive) for approximately 0.5 mile. In addition to increasing the capacity of the roadway, the project is anticipated to encourage bicycle, pedestrian and transit modes. The improvement was also identified in the 2007 Regional Activity Center Master Plan.

**#4.1 - College Avenue Upgrade – Phase II:** This project upgrades College Avenue to a 4-lane major collector roadway with bike lanes (right-of-way permitting) from SW 24<sup>th</sup> Street (Nova Drive) to SW 30<sup>th</sup> Street for approximately 0.5 mile. In addition to increasing the capacity of the roadway, the project is anticipated to encourage bicycle, pedestrian and transit modes. The improvement was also identified in the 2007 Regional Activity Center Master Plan.

**#5 – SW 136<sup>th</sup> Avenue/SW 26<sup>th</sup> Street Roundabout:** Construct a modern roundabout at the SW 136<sup>th</sup> Avenue/SW 26<sup>th</sup> Street intersection to accommodate future traffic volume at the intersection. The intersection currently operates as a four-way stop-controlled intersection. As both SW 136<sup>th</sup> Avenue and SW 26<sup>th</sup> Street are minor collector roadways, a modern roundabout at the location will enhance the aesthetic features of the intersection and anticipated to be an amenity to the neighborhood. A roundabout geometric and operational analysis should be conducted to determine appropriate alignment and lane configuration.

**#6 – University Drive/Nova Drive Intersection Improvement:** This intersection operates at LOS E under existing PM peak hour conditions. It requires dual eastbound left-turn lanes and add a westbound right-turn overlap signal phase to meet LOS standard. However, the intersection is under FDOT jurisdiction and improvement is presented here as a recommendation. More specific operational characteristics are illustrated in Figures 10 and 11 of the *Technical Memorandum 2*.

**#7 – University Drive/SW 30<sup>th</sup> Street Intersection Improvement:** This intersection operates at LOS E under existing AM peak hour conditions. It requires dual eastbound and westbound left-turn lanes, and dual eastbound through lanes to meet LOS standard. However, the intersection is under FDOT jurisdiction and improvement is presented here as a recommendation. More specific operational characteristics are illustrated in Figures 10 and 11 of the recently submitted *Technical Memorandum 2*.



**#8 – SW 154<sup>th</sup> Avenue Safety:** Install traffic calming measures, like speed hump, speed table, roadway striping, etc., along SW 154<sup>th</sup> Avenue from SW 14<sup>th</sup> Street to SW 142<sup>nd</sup> Avenue to reduce vehicular speeds. The Oakhill Neighborhood Traffic Management Study identified this roadway as having the highest average recorded 85<sup>th</sup>- percentile speed within the Oakhill Neighborhood study area.

**#9 – SW 148<sup>th</sup> Avenue Safety:** Install traffic calming measures, like speed hump, speed table, roadway striping, etc., along SW 148<sup>th</sup> Avenue from SR 84 to SW 14<sup>th</sup> Street to reduce vehicular speeds. The Oakhill Neighborhood Traffic Management Study identified this roadway as having the highest speed differential between posted speed and 85<sup>th</sup>-percentile speed measured.

**#10 – SW 86<sup>th</sup> Avenue Safety:** Install traffic calming measures, like speed hump, speed table, roadway striping, etc., along SW 86<sup>th</sup> Avenue to reduce vehicular speeds and cut-through traffic.

**#11 – Flamingo Road/SW 26<sup>th</sup> Street Intersection Improvement:** The intersection currently operates at LOS F as an unsignalized intersection. This project installs a traffic signal at the intersection of Flamingo Road and SW 26<sup>th</sup> Street. In addition, due to high vehicular speed on Flamingo Road, a traffic signal will provide safe traffic control for vehicles from SW 26<sup>th</sup> Street.

**#13 – SW 20<sup>th</sup> Street Upgrade – Phase I:** Upgrade SW 20<sup>th</sup> Street to two-lane local rural roadway standards from SW 130<sup>th</sup> Avenue to SW 127<sup>th</sup> Avenue for approximately 0.25 miles. This project is identified in the CIP.

**#15 – SW 127<sup>th</sup> Avenue Upgrade:** This project is identified in the Town's CIP and it upgrades SW 127<sup>th</sup> Avenue to 2-lane local rural roadway standards (40-ft cross section) from SW 21<sup>st</sup> Street to SW 26<sup>th</sup> Street extension for approximately 0.5 miles. The roadway is anticipated to connect to the planned extension of SW 26<sup>th</sup> Street west of Flamingo Road and not to the existing SW 26<sup>th</sup> Street, as per the public comment.

**#16 – SW 76<sup>th</sup> Avenue Upgrade – Phase II:** This project is identified in the Town's CIP and it upgrades SW 76<sup>th</sup> Avenue to 2-lane minor collector roadway standards with bike lanes from Griffin Road to Sterling Road for approximately 1.30 miles.

**#17 – NW 75<sup>th</sup> Avenue Extension:** This project is anticipated to provide better north-south connection between Stirling Road and Griffin Road around the NW 75<sup>th</sup> Avenue corridor. It seeks to connect Travis Court and El Jardine to Stirling Road with 2-lane local urban roadway.

**#18 – SW 65<sup>th</sup> Avenue –** This project is identified in the Downtown Master Plan project. It anticipates a new roadway, west of Davie Road, from Orange Drive to SW 42<sup>nd</sup> Street, which is approximately 0.25 miles. This roadway enhances the grid-network in the area and anticipated to facilitate revitalization of the area.

**#21 – SW 52<sup>nd</sup> Avenue Extension:** Upgrade and extend SW 52<sup>nd</sup> Avenue to a 2-lane minor collector from Griffin Road to SW 54<sup>th</sup> Street for approximately 0.8 miles. This roadway extension will provide additional access to the area between Griffin Road and Stirling Road, which will relieve



traffic from SW 58<sup>th</sup> Avenue. The extension is also anticipated to facilitate future development of the area.

**#23 – SW 14<sup>th</sup> Street Upgrade – Phase I:** SW 14<sup>th</sup> Street is one of the few roadways that provide some level of regional connectivity in the area. There are no other viable alternative to provide east-west connection in the area. In order to accommodate the anticipated growth in traffic and meet the Town's LOS standard, the roadway would need to be widened to four lanes in the future from I-75 to SW 148<sup>th</sup> Avenue. If the Town decides not to widen the roadway, the Town has following options: 1) change the LOS standard to F on local roads, 2) find alternative roadway connection to accommodate growth, or 3) impose development moratorium in the area to keep traffic volume at current levels. Collaboration with Broward County, the City of Sunrise and the City of Weston is recommended to implement the project.

**#24 – SW 14<sup>th</sup> Street Upgrade – Phase II:** This project is aimed at providing a safe turning movement for residents on SW 14<sup>th</sup> Street from SW 148<sup>th</sup> Avenue to SW 136<sup>th</sup> Avenue by widening it to a three-lane major collector. The residents on the south side of the roadway will be able to use the center turn-lane to turn vehicles to and from their driveways. The upgrade will consider alternative design measures to avoid disrupting the existing Equestrian trail.

**#26 – SW 14<sup>th</sup> Street/SW 154<sup>th</sup> Avenue Intersection Improvement:** With the anticipated increase in traffic on SW 14<sup>th</sup> Street, the SW 14<sup>th</sup> Street/SW 154<sup>th</sup> Avenue intersection will require an exclusive northbound right-turn lane, in addition to two eastbound and westbound through lanes. If only one eastbound and westbound through lanes is provided, additional turn lanes may be needed to address the demand.

**#27 – SW 14<sup>th</sup> Street Extension – Phase I:** This project was recommended in the 2002 Nob Hill Traffic Study. It extends SW 14<sup>th</sup> Street from Nob Hill Road to Bright Road for approximately 0.50 miles. The project is intended to provide additional access to the schools in the area, especially from SR 84, so that students, teachers and parents do not have to solely rely on Nob Hill Road for access.

**#29 – SW 14<sup>th</sup> Street Upgrade – Phase III:** This project upgrades SW 14<sup>th</sup> Street from SW 136<sup>th</sup> Avenue to SW 130<sup>th</sup> Avenue to a three-lane major collector.

**#33 – Berkley Drive Pavement Upgrade:** This roadway segment from SW 86<sup>th</sup> Avenue to SW 83<sup>rd</sup> Avenue was identified as having very poor pavement condition. The Town is anticipated to conduct a comprehensive pavement conditions report in near future which should include this project.

**#34 – SW 87<sup>th</sup> Terrace Pavement Upgrade:** This roadway segment from Berkley Drive to SW 18<sup>th</sup> Street was identified as having very poor pavement condition. The Town is anticipated to conduct a comprehensive pavement conditions report in near future which should include this project.

**#35 – SW 154<sup>th</sup> Avenue (Shotgun Road) Upgrade:** Upgrade SW 154<sup>th</sup> Avenue (Shotgun Road) to minor collector roadway standards with bike lanes from SW 14<sup>th</sup> Street to SW 142<sup>nd</sup> Avenue for approximately 3.5 miles. The roadway is ideal for recreational bicycle ride for residents if the vehicular speed can be reduced to enhance safety.





**#36 – SW 148<sup>th</sup> Avenue Upgrade:** This project is aimed at reducing the vehicular speed on the roadway by upgrade SW 148<sup>th</sup> Avenue from SW 14<sup>th</sup> Street to SR 84 to minor collector roadway standards with bike lanes and installing landscaped median for approximately 1.2 miles.

**#37 – SW 136<sup>th</sup> Avenue Upgrade:** Upgrade SW 136<sup>th</sup> Avenue to 2-lane minor collector roadway standards with bike lanes from SW 14<sup>th</sup> Street to SW 26<sup>th</sup> Street for approximately 1.0 mile. The pathway located on the eastside of SW 136<sup>th</sup> Avenue should be retained and may adequately serve pedestrian and bicycle traffic.

**#38 – Davie Road Upgrade – Phase III:** This project is identified in the 2007 RAC Master Plan as well as the Downtown Master Plan. It is aimed at revitalizing the area round the Davie Road/Orange Drive intersection. It will upgrade Davie Road to four-lane major collector roadway standards with bike lanes and on-street parking from SW 39<sup>th</sup> Street to Orange Drive for approximately 0.50 miles.

**#40 – SW 14<sup>th</sup> Street Extension – Phase I:** This project extends SW 14<sup>th</sup> Street from SW 130<sup>th</sup> Avenue to Flamingo Road as a 2-lane major collector for approximately 0.50 miles. This extension is anticipated to reduce the demand to widen SW 136<sup>th</sup> Avenue. It provides additional access to Flamingo Road from the Oakhill neighborhood.

**#43 – SW 20<sup>th</sup> Street Safety:** Install traffic calming measures, like speed hump, speed table, speed cushion, etc., along SW 20<sup>th</sup> Street from SW 154<sup>th</sup> Avenue to Flamingo Road to discourage cut-through traffic and reduce vehicular speeds.

**#44 – SW 24<sup>th</sup> Street/Nova Drive Upgrade – Phase I:** Upgrade SW 24<sup>th</sup> Street/Nova Drive to four-lane major collector roadway standards with bike lanes from Davie Road to College Avenue for approximately 0.45 miles. This segment operates at LOS F under 2008 conditions (two-lane) and is expected to operate at LOS F under 2030 conditions (two-lane). This improvement has also been identified in the Capital Improvement Program (CIP). It should be noted that additional direct access to Broward Community College (BCC) from Davie Road may be provided between Nova Drive and the main entrance to BCC on Davie Road. This additional access will likely divert some traffic from Nova Drive, thus reducing the congestion on the roadway.

**#48 – SW 26<sup>th</sup> Street Upgrade – Phase I:** As one of the main collector roadway, this project upgrades SW 26<sup>th</sup> Street to two-lane minor collector roadway standards with bike lanes from Flamingo Road to Hiatus Road for approximately 1.00 mile.

**#49 – SW 27<sup>th</sup> Court Upgrade:** This project was identified in the Town's CIP. It upgrades SW 27<sup>th</sup> Court to two-lane local urban roadway standards with bike lanes from Hiatus Road to SW 106<sup>th</sup> Terrace for approximately 0.50 miles.

**#50 – SW 29<sup>th</sup> Street Upgrade:** This project was identified in the Town's CIP. It upgrades SW 29<sup>th</sup> Street to two-lane local rural roadway standards from SW 137<sup>th</sup> Avenue to SW 136<sup>th</sup> Avenue for approximately 0.10 miles.



**#51 – SW 30<sup>th</sup> Street Upgrade – Phase I:** Upgrade SW 30<sup>th</sup> Street to three-lane major collector roadway standards with bike lanes from College Avenue to University Drive for approximately 0.85 miles. This improvement has also been identified in the Regional Activity Center (RAC) Master Plan.

**#53 – SW 39<sup>th</sup> Street Upgrade:** SW 39<sup>th</sup> Street carries high volume of traffic, especially between SW College Avenue and Davie Road. This project upgrades the roadway to a three-lane major collector from University Drive and Davie Road. This project will not provide additional capacity on the roadway. Additional direct access to Davie Road south of the main entrance to BCC and re-design of the parking lot access should be considered as one of the alternatives to improve operation on SW 39<sup>th</sup> Street.

**#54 – SW 44<sup>th</sup> Street Connection:** This project was identified in the Downtown Master Plan. The project extends SW 44<sup>th</sup> Street west from Davie Road to SW 67<sup>th</sup> Avenue extension. The project will improve the accessibility of downtown area and help in its revitalization.

**\$55 – Orange Drive Upgrade – Phase I:** The project upgrades Orange Drive to five-lane major collector from SR 7 to Florida Turnpike. The project will provide additional capacity on the roadway that serves the commercial and industrial traffic. The roadway was identified in the 2005 EAR and recent studies as having capacity constraints.

**#58 – SW 53<sup>rd</sup> Street Extension – Phase I:** This project connects SW 52<sup>nd</sup> Avenue to SW 64<sup>th</sup> Avenue with a 2-lane minor collector. This project will help develop east-west connection in the area. The actual alignment of the roadway would be determined based on consultation with the public stakeholders.

**#60 – Oak Road Extension:** This project is identified in the State Road 7 revitalization to improve the east-west connection. It extends Oakes Road from SR 7 to Davie Road and requires a bridge crossing over Florida Turnpike. The final alignment of the roadway will require public approval. The extension is anticipated to partially relieve traffic from Orange Drive as well as improve the accessibility of the area bounded by SR 7, I-595- Florida Turnpike and Orange Drive.

**#62 – SW 130<sup>th</sup> Avenue Upgrade – Phase I:** Upgrade SW 130<sup>th</sup> Avenue to 2-lane minor collector roadway standards with bike lanes from SR 84 to SW 8<sup>th</sup> Street for approximately 0.45 miles. The traffic volume on the roadway is anticipated to increase as it provides efficient connection to several residential neighborhoods. Where existing pedestrian pathways are available (mostly on the eastside of the roadway), the sidewalk and bike lanes may be detached from the roadway.

**#63 – SW 130<sup>th</sup> Avenue Upgrade – Phase II:** Upgrade SW 130<sup>th</sup> Avenue to 3-lane major collector roadway standards with bike lanes from SW 8<sup>th</sup> Street to SW 26<sup>th</sup> Street for approximately 1.5 miles. Where existing pedestrian pathways are available, the sidewalk and bike lanes may be detached from the roadway.

**#64 – SW 130<sup>th</sup> Avenue Upgrade – Phase III:** Upgrade SW 130<sup>th</sup> Avenue to 2-lane minor collector roadway standards with bike lanes from SW 26<sup>th</sup> Street to SW 36<sup>th</sup> Court for approximately 0.9



miles. Where existing pedestrian pathways are available, the sidewalk and bike lanes may be detached from the roadway.

**#65 – Hiatus Road Upgrade:** Upgrade Hiatus Road to a 4-lane major collector roadway from SR 84 to SW 14<sup>th</sup> Street for approximately 0.5 miles. This segment is expected to carry high traffic volume from residential developments on Hiatus Road.

**#67 – College Avenue Streetcar:** College Avenue is anticipated to be the main corridor in the SFEC. It will have multi-modal features like bike lanes, sidewalks, on-street parking etc. In addition, the 2007 RAC Master Plan and CIP assume that some form of fixed transit to be provided on the roadway. Given the limited service area of the roadway, a street-car service from the planned light-rail station on SR 84 to downtown Davie will likely be one of the potential transit options. This project conducts a study to determine the feasibility of providing a streetcar along College Avenue.

**#68 – SW 121<sup>st</sup> Avenue Upgrade:** This project is identified in the Town's CIP, and it upgrades SW 121<sup>st</sup> Avenue to a 2-lane local rural roadway from SW 26<sup>th</sup> Street to SW 36<sup>th</sup> Court for approximately 0.9 miles.

**#71 – SW 24<sup>th</sup> Street/Nova Drive Upgrade – Phase III:** Upgrade SW 24<sup>th</sup> Street/Nova Drive to three-lane major collector roadway standards with bike lanes from University Drive to South Pine Island Road for approximately 0.90 miles. This segment operates at LOS D under 2008 conditions (two-lane) and is expected to operate at LOS D under 2030 conditions (two-lane).

**#72 – SW 24<sup>th</sup> Street/Nova Drive Upgrade – Phase IV:** Upgrade SW 24<sup>th</sup> Street/Nova Drive to two-lane minor collector roadway standards with bike lanes from South Pine Island Road to SW 97<sup>th</sup> Avenue for approximately 0.80 miles. This segment operates at LOS D under 2008 conditions (two-lane) and is expected to operate at LOS D under 2030 conditions (two-lane).

**#73 – SW 26<sup>th</sup> Street Upgrade – Phase II:** As one of the main collector roadway in the Oakhill neighborhood, this project upgrades SW 26<sup>th</sup> Street to two-lane minor collector roadway standards with bike lanes from SW 142<sup>nd</sup> Avenue to SW 130<sup>th</sup> Avenue for approximately 1.00 mile.

**#74 – SW 30<sup>th</sup> Street Upgrade – Phase II:** Upgrade SW 30<sup>th</sup> Street to two-lane minor collector roadway standards with bike lanes from University Drive to South Pine Island Road for approximately 0.90 miles.

**#75 – NW 33<sup>rd</sup> Street Extension:** Extend NW 33<sup>rd</sup> Street from University Drive to Davie Road with two-lane local urban roadway standards with bike lanes for approximately 0.35 miles. This roadway extension will improve direct connectivity between University Drive and Davie Road.

**#76 – SW 36<sup>th</sup> Street Upgrade:** This project was identified in the RAC. It upgrades SW 36<sup>th</sup> Street from University Drive to College Avenue to a three-lane major collector with bike lanes. The project is anticipated to improve the operation and safety of the roadway and encourage bicycle traffic.



**#77 – SW 36<sup>th</sup> Court Upgrade:** This project upgrades SW 36<sup>th</sup> Court from SW 130<sup>th</sup> Avenue to SW 121<sup>st</sup> Avenue to a 2-lane minor collector with bike lanes. This project will likely require improvement at the Flamingo Road/SW 36<sup>th</sup> Court intersection.

**#78 – Orange Drive Upgrade – Phase II:** This project maintains the current three-lane section of Orange Drive and extends it to Florida Turnpike. This project is anticipated to support the revitalization of the area. Bike lanes on the south side of the roadway will not be necessary due to the presence of the linear park.

**#79 – Orange Drive Upgrade – Phase III:** This project creates a three-lane section of Orange Drive from Davie Road to University Drive. With the anticipated revitalization of the area, the additional turn-lane in the middle will improve the operation and safety of the roadway. Bike lanes on the south side of the roadway will not be necessary due to the presence of the linear park.

**#80 – SW 49<sup>th</sup> Street Upgrade:** This project upgrades SW 49<sup>th</sup> Street to 2-lane urban roadway from SW 58<sup>th</sup> Avenue to SW 52<sup>nd</sup> Avenue. The project will provide east-west connection in the area.

**#83 – SW 56<sup>th</sup> Street Extension:** This project constructs a 2-lane local rural roadway from SW 61<sup>st</sup> Avenue to SW 58<sup>th</sup> Avenue. The project will provide east-west connection in the area.

**# 86 – SW 36<sup>th</sup> Street Extension:** This project extends SW 36<sup>th</sup> Street from SW 92<sup>nd</sup> Avenue to Nob Hill Road. The project is in environmentally sensitive area and would require environmental permit to proceed. The project is anticipated to significantly improve the east-west connectivity between S Pine Island Road and Nob Hill Road, which is severely lacking.

**# 88 – Davie Road Upgrade Phase IV:** This project adds bicycle lanes, wider sidewalks, protected left turn lanes and landscape medians along this 4/5-lane major collector roadway from Griffin Road to Stirling Road. The addition of these improvements will provide a safer corridor for bicyclists, pedestrians and motorists who utilize this transit oriented corridor.



## **Figure 18**      Proposed Future Projects



## References

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